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OF

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PROCEEDINGS OF THE GENERAL MEETING

OF THE

Natural History and Antiquarian Society

OF PENZANCE,

HELD IN THE MUSEUM OF THE GEOLOGICAL SOCIETY,
FRIDAY, OCTOBER 24TH, 1851.

The President, JOSEPH CARNE, Esq., F.R.S., F.G.S., M.R.I.A., in the Chair.

The following gentlemen were elected the Officers and Council for the ensuing year:—

President.

Joseph Carne, Esq., F.R.S., &c.

Vice-Presidents.

Rev. H. Batten, M.A. | J. D. Gilbert, Esq.
J. S. Bedford, Esq. | Rev. M. N. Peters.

Council.

D. B. Bedford, Esq. | R. Branwell, Esq. | Edwin Ley, Esq.
J. J. A. Boase, Esq. | T. Darke, Esq. | Richard Pearce, Esq.
T. S. Bolitho, Esq. | R. V. Davy, Esq. | J. Scobell, Esq.
Augustus Smith, Esq.

Treasurer.

Richard Long, Esq.

Secretaries and Curators.

E. H. Rodd, Esq. | J. N. R. Millett, Esq.
Richard Q. Couch, Esq.

DONATIONS TO THE SOCIETY,

FOR 1851.

Transactions of the Royal Cornwall Polytechnic Society. By the Society.

Transactions of the Royal Institution of Cornwall. By the Institution.

A species of *Onchidium*, a rare *Mollusk*. By R. Q. Couch, Esq.

Lemnea Burnatti. By W. P. Cocks, Esq.

Thirty-nine species of Land and Fresh-water Shells, from Nottingham. By E. J. Lowe, Esq.

Collection of Phenogenous Plants, from New Zealand. By the Rev. W. Colenso, of New Zealand.

Forty species of Wood and Stone Lichens, about Penzance. By Master Pentreath.

Nika Edulis; Gebia deltura; G. stellata; Alpheus Ruber; Pisa Gibbsii; Euronyme aspera; Hyas coarctatus; Xantho rivolosa; X. florida; &c. By. W. P. Cocks, Esq.

Asterias aurantiaca, A. papposa; Cribella occulata. By R. Q. Couch, Esq.

Fifty-eight species of Birds, from Canada and the United States; and box of *Lepidopterous* Insects. By T. P. Code, Esq.

Rubbings of Monumental Brasses, from Madron. By Miss Peters.

Pennant's Globe-fish. By the Society.

Continental Lark. By J. N. R. Millett, Esq.

PRESIDENT'S ADDRESS.

THE Report of the Council, and the communications read to the society at the last annual meeting, are now published, and will complete the first volume of the society's transactions. The contents of this volume, illustrated as they are by the specimens in our museum, will prove, it is presumed, that at the time of the establishment of this society, there was ample room for it in this extreme part of Cornwall, without the slightest interference with any other society; for if the Papers thus published are of any value, they would have been, for the most part, entirely lost to science, had not a society existed on the spot to receive and to publish them. Many of the separate Papers, published from year to year, have been referred to, and extracts have been made from them, in other publications, by eminent naturalists: it may, therefore, be hoped that the volume will prove an acceptable offering to the lovers of natural history and antiquities, and also, as I trust, an earnest of the future labours of the society, as well as a reason for increased attention to, and support of, the Institution.

At the last meeting of the society, amongst the objects to which I took the liberty of calling the attention of the members, I particularly alluded to the collecting and classifying the *Algæ*, or marine plants, of Mount's-bay; not merely to shew us the productions of our own coast, but for the purpose of comparison with

those of a similar kind in other localities. This object (as far as the classification is concerned) has been attained by the labour of Mr. Ralfs, to whom the society has often been greatly indebted. The result has been published with the last Report, from which it appears that many of these plants have been found at Falmouth which have not yet been met with here, and a still greater number have been discovered in this bay that have not yet been found at Falmouth. The publication of this list will, I trust, prove a stimulus to the zealous naturalists in both localities to continue their researches. It is possible, however, that local circumstances may possess an influence on particular species. Since this list has been published Mr. Ralfs has discovered in this bay fifteen additional species, most of which are quite new to Cornwall; some indeed have only very recently been added to the British *Flora*.

It has often occurred to me that a better knowledge of the qualities of the marine plants or sea-weed (generally known in Cornwall by the name of *ore-weed)* might have an important bearing on agriculture. When a mass of sea-weed is cast up on the beach by a violent gale, there is too great a competition for it to admit of a selection; but when the plants are cut from the rocks (a common practice west of Penzance), if the difference in their quality were known, the most valuable might easily be selected.

Another suggestion made at the last meeting,—principally to the youthful members of the society,—was to collect specimens of all the lichens that grow in the west of Cornwall. Master Pentreath has applied himself to this task, and has presented to the society a collection of stone-lichens from this neighbourhood, to which Master Tracy Millett has had the good fortune to add one, discovered by himself, the *Sticta crocata*, quite new to Cornwall. The importance of lichens in dyeing, and for pigments, is well known; but whether they have not had a proper trial, or they have not been found in sufficient quantity, I am not aware that any of the Cornish lichens have yet been advantageously used in the arts.

In some other departments, a measure of success, more than usual, has attended the labours of some of the members. A fern (the *Polypodium phegopteris)*, common in Wales and in the Lake district, but of extreme rarity in Cornwall, has been discovered at Carn Galva, in Zennor, by Mr. Rodd, one of the secretaries of the society. Newman mentions, on the authority of Mr. Borrer, that it has been found at Tintagel.

Miss Millett also has discovered, at Gulval, a plant which is supposed to be new to Cornwall,—the *Lathyrus Aphaca* or yellow vetchling: Mr. Couch has added fourteen *Zoophytes* to our collection, of which many are new to Cornwall, and three have never been described; and also a *Crustacean* entirely new. In the pools about low-water mark he has also found the beautifully stitched nest of the 15-spined stickleback: it is made of sea-weed, and about the size of a pear. In addition to these he has presented a specimen of the marsupial fish known by the name of the pipe-fish.

With respect to Antiquities,—In several visits to the Islands of Scilly in the last few years, I have been much struck with the excellent condition in which many of the objects of antiquity have been preserved,—so different from what has been their fate in Cornwall, especially the *kistvaens*, or, as they are generally called, the *stone graves*. I think there are at least fifty of them on the different islands, most of them having the remains of *barrows* around them. If it were possible to obtain models of some of them, particularly the Giant's cave in St. Mary's, and the large one on Great Arthur island (the two largest of the whole, and in the best preservation), they would form an important addition to our collection, as such remains in the west of Cornwall are few and insignificant.

In exploring the island of St. Martin's amongst several *kistvaens* on the eminence called Cruther's hill, I observed one which I fully believe has never been opened, and of two others I have great doubt: the remains of *barrows* are visible around them. The Proprietor of the islands, to whom I mentioned the circumstance, is not likely to let them remain long unexamined.

YOUR council have again, in the course of their annual duties, to offer to the society an account of their proceedings since their last meeting; and, in so doing, have great pleasure in announcing that the progress of the society has been very satisfactory. The exertions of the members have been continued, and have been crowned with success.

In the first place your council may remark that, during the past year, the first volume of our Transactions has been completed, the last number of which having just issued from the press. It is not to be expected that your council should indulge in any congratulations on that event, but they cannot refer to it without expressing their conviction that the original intentions, for the establishment of the society, have in every case been acted on; and that, in proportion to our resources, the spirit of the original design has been carried out, by occasionally extending our operations.

Your council anticipated, before the return of this annual meeting, that they should have been able to have given some satisfactory report of the progress of the new building, intended to receive our

collection, in connexion with the Geological Society of Cornwall. This they regret it is not in their power to do, but yet the subscription list is sufficiently far advanced to hold out a reasonable hope that, ere long, so desirable a building will be raised. Our museum is increasing, and, under favourable circumstances, a large quantity of new and valuable matter at our command, will be added to our collection. Your council hope, therefore, that during another year we may look forward, with certainty, to our removal from our present confined position.

At our last meeting it was announced that some of our ancient monuments were in great danger of mutilation, and even of destruction. Your council have the pleasure to report that Mr. Freeman, who then offered to use his exertions and influence to prevent such injuries, has so far fulfilled his promise, that, from that period to the present, they have all remained untouched: so that our thanks are due to that gentleman for his kindness in furthering the views of the society.

On previous occasions, your council have had to report the receipt of copies of the Monumental Brasses of Cornwall from Mr. Hare; this year they have the pleasure to record that they have received similar rubbings from the Rev. M. N. Peters from Madron, carefully arranged, and mounted on rollers. These will be deposited in our museum.

Your council have also to draw attention to the notice of a large cromlech, by J. J. A. Boase, Esq., which will be laid before the society to-day.

ORNITHOLOGY.

In our last Report, there is an extensive list of the *Ornithology* of the county; since that, several examples of very rare species have occurred; besides two additions to the *Fauna*. The new species are the whiskered tern and Ortolan bunting; the tern being only a recent addition to the British list.

Two specimens of the Pomerine skua have occurred in our bay; one of which is intended for our museum; and a fine specimen of Sabine's gull.

Another specimen of the Continental lark, shot close to the town, has also been added to our museum since the last annual meeting.

FISH.

Among the fish, the observations of our members have been continued; and the capture of some very rare species has been the result; together with increased knowledge of the habits of others.

During the past summer the migrations of the pilchard have again received a portion of that attention which their importance to the county demands. Your council would remark, that the pilchard has also been observed along the shores of Algeria in the Mediterranean. When their periodical movements have been more carefully observed, for a longer period than has yet been done, no doubt some important conclusions may be deduced from them.

The Spanish mackerel *(Scomber colias)* has been taken; and a multitude of the tunny were observed in deep water; and on two or three occasions the striped bonito was observed in eager pursuit of the skipper *(Esox saurus)*. Among the greatest rarities, that have occurred during the past year, is Pennant's globe-fish, a species as remarkable for its figure, as its rarity. It is worthy of especial remark, that, out of four specimens of this rare fish taken in England, three have been captured in Mount's-bay; and we have now the pleasure to record the capture of another specimen, which is on the table, and which will be deposited in our museum.

The boar-fish has been again taken, on the western limits of Mount's-bay.

CRUSTACEA.

Among the *Crustacea*, our efforts have been crowned with more than usual success. Among others, we would refer particularly to the occurrence of a variety of the slender spider crab *(Stenorynchus tennirostris)*. Professor Bell says, in his book on the British *Crustacea*, that he considers the Mediterranean species as

distinct from our own, and he then enters into a comparison of the two; from specimens of one kind, found in England; and of the other, from specimens received from Sicily. Your council would remark that, if distinct, both species are found in Mount's-bay; and *Pisa tetradon* and *Gibbsii* are also found here. Two specimens of *Eurynome aspera* have been taken from deep water; one by trawl, and the other from the stomach of the haddock. A species of *Xantho* has also been added to the British *Fauna;* but it is intended, at a future time, to give a list of all the species found in the district, included in our researches.

ZOOPHYTES.

Among the lower orders of animals, such as the *Zoophytes,* numerous additions have been made to our *Fauna;* and three, at least, are now described for the first time. The additions, in this branch of our pursuits, will be laid before the society to-day.

MOLLUSCA.

Of the naked *Mollusca,* many additions have been made to our former list; and one new one is added to the British *Fauna;* an account of which will be read before the society to-day. These creatures are remarkably brilliant in their colouring; and very grotesque in their forms; and therefore very likely to attract the attention of the student.

BOTANY.

In our Botanical exertions, numerous additions have to be made. For these, the council have great pleasure in stating, that they are almost entirely indebted to their young friends. Among the flowering plants we have to add the vetchling, or everlasting pea *(Lathyrus aphaca),* found in Gulval. Among the *Cryptogamia,* the pale mountain polypody *(Polypodium phegopteris),* at Cairn Galva. Among the Lichens, a new one has been added to our county *(Sticta crocata);* it was found by Master T. Millett. Of this class of productions we have now, on the table, a collection of the stone lichens, as well as many of the tree ones,—accompanied

by a written list of their names, and the localities from whence they were gathered, by Master Pentreath. The specimens will be deposited in our museum, and the list will be printed in our next Report. At our last annual meeting, our President noticed this subject, and suggested that a collection should be formed, for our museum; the council have, therefore, great pleasure in drawing attention to this reply to the President's suggestion; and venture also to express a hope, that similar collections, of other branches of natural history, will be made by others of our young friends.

In our last publication there is a list of *Algæ*, supplied by an honorary member of our society; since it was printed, by the indefatigable labours of the same gentleman, we have now to add sixteen additional species, all of which are rare.

Your council have to acknowledge the receipt of a small, but interesting, collection of flowering plants from New Zealand, from the Rev. Mr. Colenso, a native of this town; these, the council would advise, should at once be preserved, by being placed in a book similar to the one used for the *Algæ*.

The council have, therefore, the satisfaction of announcing that during the past year, two new birds; seventeen new *Zoophytes;* two new *Mollusca;* fourteen new plants; and two new *Crustacea*, have been added to the Cornish list; and the occurrence of rare species has also been recorded.

J. N. R. Millett,
Edward Hearle Rodd,
R. Q. Couch,
} *Secretaries.*

Oct. 24th, 1851.

Notice of a Crustacean, new to Cornwall.

By RICHARD Q. COUCH, Esq., M.R.C.S.,

ONE OF THE SECRETARIES.

IN the course of an examination into the *Crustaceans* found in our seas, I have, on several occasions, found specimens which could not very distinctly be referred to any known species; but for want of leisure they were never very carefully examined till a short time since. Having procured two specimens from near the Runnel-stone, they were examined for the purpose of ascertaining their specific differences. They approach very closely to *Xantho rivolosa*, but yet differ from it in several important particulars.

Habit.,—Runnel-stone, in the crevices of *Eschara foliacea*.

It is of a light brown, and the first pair of claws, of a semi-transparent colour. Its width is to its breadth, as three to two. Its carapace is deflexed anteriorly; the latero-anterior margin with four triangular teeth. The front is produced, and slightly waved, depressed or notched in the centre; the edge minutely granulated. The markings of the carapace rather strongly developed, but not standing in high relief. First pair of claws nearly equal, large, and strongly tuberculated; tubercles on the hand somewhat transversely arranged. Fingers of a brownish-black, the moveable one with three furrows,—two above, one on each side of the median line, and one about the centre of the external surface. The second,

third, fourth, and fifth pair of claws compressed, and covered with hair all over on the three terminal joints, and a small patch on the inferior surface and proximal side of the fourth joint. The superior margin of the second, third, fourth, and fifth pair of claws, on the fourth joint, coarsely serrated, and without hairs. Hand strongly tuberculated, and more so above than below; wrist bi-tuberculated, but the tubercles are not very distinct, as in the other species; the third joint with a row of tubercles on the superior margin. The orbit has a single fissure at its internal canthus below. The abdomen in the male with seven joints. External *antennæ* about half an inch long, and situated on the inner canthus, and on the medial side of the notch; the two lower joints of nearly equal diameter, the inferior being a little longer than the other, and both are longer than they are wide,—the termination tapering; internal *antennæ* transverse, each in a sulcus beneath the front margin.

Compared with the only two species we have, it differs from both, in the length of the *antennæ* being twice as great, and in having the whole of the three terminal joints of the claws covered with short thick hairs, and the upper margin of the next joints deeply serrated. This is certainly distinct from the two other species found in Britain, with which I am well acquainted.

I have been unable, to identify this with any described species, either in Cuvier or Milne Edwards, though it approaches, to *X. hirtepes* of the last author; but his description is too short and imperfect to speak with certainty.*—

" Xanthe pieds velus. *X. hirtepes.*

" Espèce tres variée du Xanthe rivuleux, mais ayant *la carapace un peu plus bombée, le front marqué d'un léger sillon transversal, et la face externe des mains garnie de plusieurs rangées de petits tubercules perles.* Longueur environ cinq lignes."

* A specimen has been submitted to Professor T. Bell, of King's College, London, and he has pronounced it a new species, and has assigned to it the name *Xantho Couchii.*

Notes on the growth of Maize.

By J. RALFS, Esq., M.R.C.S., &c.,

HONORARY MEMBER OF THE SOCIETY.

ON my return to Penzance in the autumn of 1851 my attention was attracted by the unproductive manner of cultivating maize here, so different from what I had seen in France. I am therefore induced to offer to the society a few remarks upon the subject.

Maize is much cultivated in France, not only as a grain, but also for fodder. In the north of France it is useful merely for the latter purpose, as there it ripens only in very fine seasons, and even so far south as the department of the Dordogne it does not constantly ripen upon the higher grounds. Its cultivation therefore will, I am persuaded, be unprofitable in this neighbourhood unless fodder be the principal object.

Cattle thrive well upon it, and the French farmers consider the leaves one of the best kind of green food for dairy cows. In giving it to cattle, however, one precaution is necessary,—it must not at first form their entire sustenance, but be introduced gradually.

It is best to sow the seeds a greater distance apart than has been done in the trials about Penzance. The French say, "he who sows thick will reap thin, and he who sows thin will reap thick." *(qui sème dru, récolte menu; qui sème menu, récolte dru.)* It is necessary to keep the ground carefully weeded, but after three or four weedings the French often sow between the rows either beans, haricots, or field peas; these, however, must not be staked so as to shade the maize.

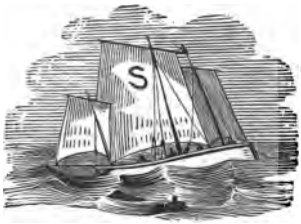
The maize is a monœcious plant,—that is, the barren and fertile flowers are apart; the latter are situated near the base, the former are terminal on a leafy stem which rises considerably above the fertile flowers. As soon as the barren flowers have scattered their dust, having performed their office, they fade. Here they have been suffered to remain; the case is otherwise in France. When this part is no longer required the French pluck the stem just above the fertile spikes, and thus not only obtain a large quantity of excellent fodder, but all the nourishment is directed to the grain, the heat of the sun is better able to reach it, and consequently it ripens earlier,—a matter of great importance in our climate.

In France, the corn when gathered is sometimes put into an oven for twenty-four hours at a heat about equal to that for baking bread; treated in this way, it dries and keeps better, but as its vitality is destroyed it is of course useless for sowing.

Notice of the Capture of a Sturgeon, differing from those recognised as British.

By RICHARD Q. COUCH, Esq., M.R.C.S.,

ONE OF THE SECRETARIES



OME years ago a specimen of sturgeon was taken off Lamorna, at the western entrance to Mount's-bay, which differed from other specimens of the same fish which I had previously examined; but from pressing engagements I was unable to bring the investigation to any conclusion, regarding the differences observed. Some time ago, another specimen, with similar markings, was captured in the same locality, and is now preserved in our museum. To this I would now direct the attention of the society.

The most common of the sturgeons is *Acipenser sturio*, of which many specimens have been taken at Hayle and in Mount's-bay. It is distinguished by the length of its snout, and the cirri are placed about midway between the mouth and the snout. The other British species, described by Dr. Parnell, he has called *A. latirostris*, from the breadth of its snout, which is also much shorter than that of the other; and the cirri are placed much nearer to the tip of the snout than the mouth. In both the form and arrangement of the cranial plates differ, and they may be supposed to be characteristic of the species. The specimens taken off Lamorna, differ from both of these recognised species. The snout is shorter and less pointed than in *Acipenser sturio*, and longer and narrower than in *A. latirostris*, and the cranial plates

differ in the same manner, partaking of the arrangements of both. Length, 6 feet 6 inches, the colour of a light stone-grey above, below of a dingy white. The snout is short and pyramidal, much more than a Yarrell's figure of *A. sturio.* The body is armed with five rows of osseous shells, arranged longitudinally. The dorsal plates, anterior to the dorsal fins, are thirteen in number; the first is quadrangular, and attached to the cranial shield; the others are smaller, and the first the smallest, with a highly raised crest or ridge; behind the dorsal fin are two rows. The lateral spines are thirty in number and pterygoid in figure. The cirri are nearly about midway between the mouth and point of the nose. The shield of the gill-cover is large, occupying nearly all the space, all the striæ radiating posteriorly. In all these respects it differs from both the British species. The shield of the gill-cover in *latirostris* is large, but the point of the radiation of the striæ is more central, and some of the striæ radiate anteriorly; in *sturio,* where the striæ radiate posteriorly, the shield is so small as to seem rudimentary. The cranial-plates differ in the same manner. The first of the cranial-plates resembles *latirostris,* the two lateral ones resemble, but not closely, those of *sturio,* while the anterior pair is entirely distinct from both. As the specimen is now preserved in our museum, and may be the subject of further investigation, it will be well to secure specimens of the other species for the sake of comparison.

Remarks on the Wind and the Lightning of 14*th December*, 1850.

By RICHARD EDMONDS, Jun., Esq.

THE wind for a few minutes, during the storm on Saturday, the 14th of December, 1850, was so violent that a fir-tree (pinaster) 40 feet high, in front of the farm-house of Trungle, in the parish of St. Paul, near Penzance, was snapped asunder, and the upper part (26 feet long) blown 4 yards through the air before it reached the ground. Its circumference, at the height of 12 feet, where it broke, is 3 feet 2 inches. It was perfectly sound in every part, and its head well stocked with cones.

At Marazion, 6 miles N.E. of Trungle, the wind partially unroofed houses, and carried the slates over other houses on the opposite sides of the streets. Sheaves of wheat also were caught up from a rick, and carried over houses some hundreds of yards through the air.

The blast was severely felt at Penzance, Helston, and Camborne, at which last place considerable damage was done to the houses.

This tremendous squall from S.W. by W. happened in all these places between half-past two and three o'clock, p.m., and was accompanied with heavy rain or hail, fierce lightning, and thunder. At Gweek, near Helston, a house was struck and considerably damaged by the electric fluid.

It was probably during this brief hurricane that the following remarkable effects of lightning were produced at Penzance in the lower part of a chimney-board in a bed-room of the highest house on the western side of Regent-square. The "board" consisted of a wooden frame, on which canvass was stretched, covered

externally with paper. No fire-irons were near, nor any metallic substance, except a small narrow stove, and the nails in the board placed against it. As the lightning descended across the interval between the two lowest bars of the stove, it burnt a hole more than an inch in diameter in the part of the canvass which stood against that interval; but the part that stood against the bars themselves was only scorched. The distance between the lowest bar and the hearthstone is 9 inches, opposite the upper part of which space a hole was burnt through the canvass more than 4 inches in diameter, and in the wooden frame immediately below where a nail or two had been driven, another hole 1½ inch in diameter was burnt, reaching to within a quarter of an inch of the hearthstone.

The lightning which made these holes must have descended in a nearly vertical line across the centres of the bars, for it is only in and near the centre of the chimney-board (lengthwise) that any mark of lightning appears. No other effects of the lightning could be discovered, nor was any internal explosion heard. Even these effects were not observed until a day or two afterwards.

On the same morning a "remarkable thunder-storm passed obliquely across the S.W. of Ireland, beginning at Clare and going off at Cork," the lightning being very destructive in each place. On the same day the *Sobraon*, a ship of 1,300 tons, bound from Liverpool to Bombay, in longitude 9° W., encountered "a hurricane from the westward," which so disabled her that she was towed into Falmouth.

The barometer in Marazion at 9 a.m. was 29·62; during the blast, 29·30; and at 9 p.m., 29·50.

Remarks on the discovery of a species of Onchidium *(a rare sort of sea-slug) on the coast of Cornwall.*

By JONATHAN COUCH, Esq., F.L.S., &c.,

MEMBER OF THE SOCIETY.

THE genus of water-slugs called *Onchidium*, was so named by Buchan, because the species first described by him, in the Transactions of the Linnean Society of London, had the surface of its mantle covered with tubercles. By Cuvier it is arranged among the aquatic air-breathing mollusks, or such as have the breathing organs in the form of a vascular net spread on the thickness of a distinct cavity, the aperture of which obeys the will of the animal. This aperture, together with the anus, is under the posterior edge of the mantle. It has two tentacula or fleshy pillars, which support the eyes: the foot is rather narrow, aud the mantle overlapping.

It seems that the species of this genus are very rare, and only one is known to occur on the shores of France; viz., the *Onchidium celticum* of Cuvier: and the only situation in which hitherto it has been found is in a limited spot at the mouth of the River Rancé, near St. Malo; but there it is said to be in abundance, near the high-water mark.

In Cornwall it occurs in moderate plenty on a very confined space of rocks, at a place called West Coomb, in Lantivet bay, between Polperro and Fowey; and as far as enquiry has been made, nowhere else in the United Kingdom. They are commonly found congregated together in little groups, within a foot or two of the surface of the sea, and they ascend or descend so as to maintain their distance as the tides rise and fall. How little

they are able to bear immersion appears from the difficulty I have found in keeping them alive in a bottle of sea-water, where they have not survived for a single day. Specimens which were sent to Joshua Alder, Esq., at Newcastle-on-Tyne, were found to be dead on their arrival. And yet, under some circumstances, they must be capable of sustaining a temporary submersion; for in a long continuance of dry and warm weather none were to be found in the usual situation; and in stormy weather the rocks they inhabit are usually covered with the breaking waves.

Additions to the Algæ *of Mount's-bay.*

By J. RALFS, Esq., M.R.C.S., &c.,

HONORARY MEMBER OF THE SOCIETY.

1.* *Griffithsia corallina*.....	Newlyn.
Ceramium nodosum	On *Zostera.*
Microcladia glandulosa.	
Nitophyllum Gmelini	Newlyn; cast up after storms.
Polysiphonia fibrillosa....	Long Rocks.

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2. *Zonaria parvula*	Sides of rocks uncovered only at the lowest tides.
Dictyota atomaria.....	Occasionally cast up after storms.
Ectocarpus simpliciusculus.	Parasitic on *Stilophora rhizodes* and *Cystoseira ericoides.*
Leathesia Berkeleyi.....	Sides of rocks, not uncommon.
Ceramium fastigiatum....	On *Zostera.*
Chylocladia reflexa	Pools in the rocks; plentiful.
Naccaria Wigghii.....	Occasionally cast up after storms.
Stenogramma interrupta ..	A solitary specimen cast up on the beach after a storm.
Polysiphonia obscura.....	Battery Rocks.
Calothrix lamellosa, Harv. M.SS. (*Calothrix semiplena*, Phy. Brit.)	Mousehole.

The plant found at Falmouth and Mount's-bay, and called in the former lists, *Polysiphonia spinulosa*, is now considered by Professor Harvey as a distinct species, which he names *P. simulans.*

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* The figures refer to the lists in a former Paper.

List of the Lichens, found in West Penwith.

By Master PENTREATH.

Bæomyces rufus	Gulval, Rosehill, &c.
——— *roseus*	Trengwainton.
Opegrapha atra.....	Lamorna valley; very fine: common, on trees.
——— *saxatilis*	On a stone wall near Lariggan gate.
——— *elegans*.....	Trevayler valley; rare.
——— *scripta*.....	Very fine in Trevayler valley.
——— *dendritica*	Ditto.
——— *varia*.....	Common.
——— *atra*.....	Trees.
——— *rufescens*	Trees; not common.
Arthonia impolita	Treneere.
Verrucaria nitida	On trees; common
——— *cinerea*	Lamorna, and rocks near Mousehole cave.
——— *olivacea*.....	Trees.
——— *plumbea*.....	Castallack carn, Zennor.
——— *viridula*.....	Trengwainton, Kerris, &c.
——— *maura*.....	Common on the coast.
Endocarpon miniatum	Very fine at Lamorna. &c.
——— *Hedwigii*	Bank opposite the Lodge gate at Nancealverne; very fine.
——— *lachneum**....	Lamorna, &c.; not uncommon.
——— *pulchellum*....	Trees; common.
——— *smaragdulum*..	Very fine on a few scattered rocks near New Bridge.

* Var. of *Hedwigii*; Hooker.

Endocarpon rufo-virescens . Occasionally.
Pertusaria communis..... Trees at Castle Horneck.
——— *fallax* ..... Common on trees.
——— *crassa* ..... Rather common on trees and on stones.
Lepraria flava ..... Not uncommon.
——— *viridis* ..... On trees at Treneere, &c.; common.
Variolaria faginea ..... Abundant on trees, especially in Trevayler bottom.
——— *lactea*..... Not so frequent as the former; on rocks: rather plentiful on Zennor hill.
Urceolaria calcarea ..... Lamorna and rocks above high-water mark near Newlyn.
——— *Acharii* ..... Lamorna and road-side above Buryas bridge; very rare.
——— *cinerea* ..... Frequent.
Lecidea stellulata..... Land's-end, Lamorna, Newlyn, &c.; common in the neighbourhood.
——— *elæochroma*..... Trees.
——— *parasema* ..... Trees, &c.
——— *sulphurea* ..... Rocks near the coast, at Newlyn, &c.; very fine.
——— *lutea* ..... On trees; common.
——— *brunnea*..... Madron, road leading to New Bridge, &c.
——— *quadricolor*..... Between Penzance and Hayle.
——— *intricata*..... Castallack carn, Lamorna, &c.
——— *atro-alba*..... Newlyn; rather common.
——— *confluens*..... Abundant.
——— *geographica*..... Common on rocks near the coast; Lamorna, &c.
——— *scabrosa* ..... Mousehole, Lamorna, &c.
——— *rivulosa*..... Zennor, Trengwainton, &c.
——— *anomala* ..... Trees at Trevayler; also at Castle Horneck.

Lecidea ferruginea ..... Lamorna, Zennor, and at Chûn castle; very fine specimens.
——— *polytropa* ..... Rocks on Chyanhâl moor; not very frequent.
——— *erythrella* ..... Rocks.
Lecanora atra ..... Abundant everywhere.
——— *milvina* ..... Common in this neighbourhood, but very rare indeed elsewhere.
——— *Salweii* ..... Kerris moor, &c.
——— *aipospila* ..... Very rare: at Tol-pedn-Penwith; also at another locality lately discovered, at Lamorna.
——— *sophodes* ..... Not uncommon on trees.
——— *glaucoma* ..... At the back of Mr. Veale's House, Trevayler; Lamorna; and a few other localities.
——— *subfusca* ..... Everywhere common.
——— *ventosa* ..... Morvah.
——— *cæsio-rufa* ..... Rare; at Lamorna.
——— *Hæmatomma* ... St. Ives, Zennor, Lamorna, and Castallack carn.
——— *cerina* ..... Trengwainton avenue; very rare.
——— *carneo-lutea* .... Trevayler valley; very rare.
——— *Parella* ..... Very common.
——— *tartarea* ..... Lamorna, and carn near Zennor.
Psora atro-rufa ..... Rocks above high-water mark, at Mousehole.
Parmelia muscorum ..... Madron and Trevayler valley.
——— *candelaria* ..... Rocks in Kerris moor and at Zennor.
——— *murorum* ..... Common.
——— *Clementi* ..... Castle Horneck.
——— *cæsia* ..... Lamorna, &c.; rather rare.
——— *affinis* ..... Lamorna, &c.
——— *saxicola* ..... Castallack carn, Lamorna, &c.; not uncommon.
——— *elæina* ..... Castle Horneck; also on some elder trees in a field near Zennor head.

Parmelia caperata ..... Common on rocks above Madron, at Lamorna, Kerris, &c., with shields.
——— *conspersa* ..... Very fine on rocks near the old Sperris Mine, at Zennor, &c., &c.
——— *Borreri* ..... In several localities; but found with shields only on trees near Paul church.
——— *Saxatilis* ..... Trengwainton grove, with shields.
——— *omphalodes* ..... On rocks; shields not rare.
——— *perlata* ..... Rather common.
——— *lævigata* ..... With shields, at Madron.
——— *olivacea* ..... On trees; rocks; not uncommon.
——— *pulverulenta* .... Common on trees.
——— *stellaris* ..... On trees; common.
——— *speciosa* ..... Lamorna; very rare.
——— *virella* ..... Trevayler valley; scarce.
——— *aquila* ..... Everywhere common.
——— *sinuosa* ..... Trengwainton grove; very rare.—Mr. Ralfs.
——— *parietina* ..... Very common.
——— *physodes* ..... Frequent on rocks.
——— *diatrypa* ..... Very plentiful at Zennor; — more sparingly in other localities.
——— *sulcata* ..... Common; with shields, scarce.
——— *reticulata* ..... On a tree at Castle Horneck, and at Trengwainton; rare.
Sticta crocata ..... Very rare; and only lately discovered in this neighbourhood by Master Tracy Millett.
——— *pulmonaria* ..... At two localities only in Zennor.
——— *scrobiculata* ..... Not uncommon; very fine.
——— *limbata* ..... Castallack carn, Trevayler valley, &c.
——— *fuliginosa* ..... Not unfrequent.
——— *sylvatica* ..... Ditto.
——— *glomulifera* ..... Lamorna; as yet the only locality discovered here.

Sticta herbacea	At Lamorna; rare.
Placodium canescens.....	Very common on trees, but fruit rather scarce.
——— *plumbeum*	Castallack carn, &c.
Collema cristatum	Castallack carn, and a few other localities.
——— *palmatum*	Madron.
——— *nigrescens*	Common at Castle Horneck.
——— *musicola*	Rocks slightly covered with earth; shields, rare.
——— *tenuissimum*	On a bank at Bologas.
——— *tremelloides*.....	Lamorna, &c.; always barren.
——— *lacerum*.....	Kenegie; not uncommon.
Peltidea canina.....	Very common.
——— *polydactyla*.....	Ditto.
Nephroma resupinata.....	Gulval carn, &c.
Cetraria sepincola.... ...	Castallack carn; Zennor.
——— *glauca*	Grows frequently with the above.
Roccella tinctoria	Lamorna; rare.
——— *fuciformis*.....	Lamorna cove and Scilly Islands; it produces fruit on some rocks east of the Logan stone.
Lichina confinis..... } ——— *pygmæa* ..... }	Coast. See Ralfs on the Marine *Algæ*, last Report of the Natural History Society, page 379, sec. 3.
Borrera tenella	Common on trees.
——— *leucomela*	Very rare; Lamorna and Castallack carn.
——— *flavicans*	With shields, in an orchard near Penzance.
Evernia prunastri.....	Not uncommon.
Ramalina fastigiata	Common.
——— *scopulorum*.....	Ditto.
——— *farinacea*	Not unfrequent.
Usnea hirta ..... } ——— *florida*..... }	Land's-end, with flesh coloured warts.

Alectoria jubata	Rather common.
Cornicularia bicolor	In several localities.
——— *aculeata*	Kerris moor.
Isidium microsticticum	Rocks near the coast.
——— *corallinum*.....	Ditto
Sphærophoron coralloides ..	Not unfrequent; Zennor, Madron, &c.
Stereocaulon paschale	Castallack carn.
Cladonia uncialis	Castallack carn, and at Kerris.
——— *rangiferina*	Rather common.
——— *pungens*	Frequent.
——— *furcata*	Castallack carn, Kerris, and many other localities.
Scyphophorus cæspititius ..	Trevayler bottom.
——— *parasiticus* ..	Lamorna.
——— *sparassus* ...	Trengwainton, &c.
——— *cervicornis* ..	Ditto.
——— *pyxidatus* ...	Common.
——— *radiatus*	Lamorna.
——— *cornutus*	Trengwainton grove.
——— *filiformis* ...	Not unfrequent.
——— *cocciferus* ...	Common.
Pynothelia papillaria	Lately discovered at Zennor by Mr. Ralfs.

Notice of a remarkable Cromlech, in France.

By J. J. A. BOASE, Esq.,

MEMBER OF THE SOCIETY.

DURING a recent excursion to the banks of "The Majestic Loire," as I was returning to Saumur from a visit to the once splendid Abbey of Fontevrault, the last resting-place of more than one of England's kings, I heard by chance of "*Les Pierres Montées*," and on my enquiring what they were, was told "a Roman monument." Feeling convinced, from the very name, "the raised stones," that it would on examination prove to be Celtic, I resolved immediately on ascertaining the fact. Passing onwards, therefore, through Saumur, I proceeded for about half a league on the road to Napoleon-Vendée, and then turning off to the left, a rough lane soon brought me to the spot, and I found, to my utter amazement, a cromlech larger than Lanyon, Chûn, Molfra, and Zennor cromlechs all put together. It is composed of fourteen stones;—four on either side; a single stone at one end; four quoits, or covering-stones; and an upright one in the middle. There can be no doubt, however, that there was originally another stone at the other end (now boarded up, but with an entrance doorway) which closed it in, and formed a complete oblong cell, or kistvaen. The interior is 52 feet long, by 14 feet 6 inches wide, and between 8 and 9 feet high. The single stone at the end projects beyond the sides and is 23 feet in length. The largest of the four covering-stones is nearly 60 feet in circumference, by about 18 inches in thickness; and two others fall little short of these dimensions. Now the

largest cromlech in Cornwall is that known as the Trevethy stone, in the parish of St. Cleer, of which we have in our Transactions an interesting account by E. H. Pedlar, Esq. It is described by Britton and Brayley as "of greater magnitude than that at Mona, or any other we are acquainted with; and the superincumbent stone is said to be about 16 feet long, by 10 broad, and at a medium about 14 inches thick."

Relying, however, on their own authority, Lanyon cromlech might be instanced as of still larger proportions, as they state the quoit, or covering-stone, to be 28 feet long, by 14 wide! whilst, according to C. S. Gilbert "it is so high that a man and horse can pass under it,"—this being equivalent to about 8 feet. But on testing these measurements I found the extreme length to be 17 feet 7 inches; the greatest breadth 8 feet 2 inches; height to the lower face 5 feet 8 inches,—the circumference being 44 feet 4 inches. The excellent, and generally accurate, "Guide to Penzance" has also fallen into error with respect to this quoit when it says that "it appears to be supported by four upright stones, but it rests on only three of them;" there being in fact only three columnar stones, of which any one may satisfy himself by a visit to our museum, where are to be seen accurate models of several of our cromlechs, for which we are indebted to the skill and labour of two ladies, members of the society.

But supposing the measurement of the St. Cleer cromlech to be accurately given, and the width of the quoit to be equal throughout its length, which, it being a rough unhewn stone, is not likely, still its circumference would be only 52 feet. This is less than that of three of the covering-stones of the Saumur cromlech, to which Norden's description of Trevethy, "a little *howse* raysed of mightie stones" may be justly applied; as it really might be termed "*Casa Gigantis,*" as, he says, the Trevethy stone is called in Latin.

These monuments of a remote antiquity lie scattered over no small portion of Europe, but being anterior to all written evidence, their history is entirely unknown, and must ever be matter of conjecture. Formerly they were considered to be Druidical altars, but are now more generally supposed to be sepulchral. As,

however, these opinions do not involve a contradiction, may they not both be correct? If the term cromlech signify, as it may in a secondary sense, the stone of adoration, it is certainly in favor of the older theory; which, perhaps, also gains some support from the term uniformly used in Brittany, where cromlechs are not less frequent than they are in Cornwall, viz:— "Dolmen," which, the d and t being interchangeable, is clearly the Armoric "taul" table, and "maen" a stone; the table stone, on which sacrifices are there also supposed to have been offered; although it is not impossible that an earlier appellation may have been lost, and the appearance of the cromlech been suggestive of its present name. But granting cromlechs to have been altars, what more natural than that the Archdruids, and most distinguished chieftains, should be buried in the sacred inclosures beneath; and the fact of "some having been dug up, and indisputable remains of sepulture discovered," appears conclusive that they were applied to such purposes. The name also of the famous cromlech in Kent known as Kit Coty's house points out, in all probability, the last long home of the British prince Catigern, who fell in battle against the Saxons in the great victory gained by his brother Vortimer over Hengist and Horsa near Aylesford in 455. The celebrated historian of Cornwall, of whom we have such just reason to be proud, in support of his opinion that cromlechs, although called altars, were never used for sacrificial purposes, compares them to our own altar-tombs, which are altars only in appearance, and therefore, it may be, somewhat inappropriately named; but supposing cromlechs in accordance with the ancient belief to have been really altars, and at the same time sepulchral monuments, it would be difficult to imagine for them an apter term, or one more admirably descriptive of their combined character, than that of "Altar-tombs."

Every question connected with cromlechs is so enveloped in the mist of ages, that their very erection is as great a mystery as their destination; "*nec potest quis excogitare,*" says an old author of the twelfth century, "*quâ arte tanti lapides adeò in altum elevati sunt.*" It is not indeed easy to conceive how the covering-stones, many of them weighing twenty tons and upwards, could possibly have been

elevated without the assistance of machinery. Unable to solve the difficulty, a distinguished writer in the reign of Elizabeth conjectured that they were not real stones, but "*saxa factitia,*" a species of saxification which would, I think, sorely puzzle our modern lapidaries, skilful as they are in the art of manufacturing artificial stones. The only plausible solution seems to be that the ancient Celts made use of an inclined plane of earth, and raised these enormous masses to their present position by the mere force of numbers;—

Multorum manibus grande levatur onus;

the whole power of a tribe being tasked to erect a monument worthy of "the mighty dead," either of their own, or of some still more distant times.

Strange to say, "*Les Pierres Montées,*" to which I have had the honor to call the attention of this meeting, appear to have escaped the general observation of travellers; as, although a description of them cannot but exist, I have sought in vain for any account, both among my own books, and those of the Public Library. Presuming, therefore, that this very remarkable cromlech may be as new to most of the members as it was to me, this slight notice of it, with the few brief remarks on cromlechs in general which the subject has called forth, may not be altogether uninteresting; especially to any who may contemplate a visit to the delightful region situated between Orleans and Nantes, which is so fruitful in subjects for both the pen and pencil.

Notice of the capture, in Mount's-bay, of Pennant's Globe-fish (Tetrodon Pennantii).

By RICHARD Q. COUCH, Esq., M.R.C.S.,

ONE OF THE SECRETARIES.

AS it forms a part of the design of our society to record the capture, as well as to preserve the specimens, of any rare objects of natural history that may occur within our district, I have the pleasure to-day of recording the re-appearance of Pennant's globe *Tetradon*. It was taken in August, off Penlee point, by two boys, as it was floating on the water. Pennant was the first author who described it as a British fish, and he did so from a specimen taken in Mount's-bay; or, as he says, from Penzance, in Cornwall. Since his time another specimen has been taken, also in Cornwall, but the exact locality is not stated. A third specimen was taken in Mount's-bay in 1833, a figure of which was sent to the Zoological Society, by Dr. Boase, formerly a resident amongst us. A fourth specimen has been reported to have been taken near Waterford, in Ireland. With the present capture, therefore, five specimens have been taken in the British seas, four of which have been in Cornwall, and three of these, if not all the four, in Mount's-bay.

In general outline it is long and slender, but round and plump, if viewed from above. The colour on the back is a deep blue-black, inclining to neutral tint at the sides, changing into silvery white below. The globe is white, inclining to a yellowish-flesh

flesh tint, and covered with numerous spines. The back is very straight, the only slope is from the mouth to a short distance behind the origin of the pectoral fins, but it is very slight. Below the mouth there is a gradual slope for about two inches to the globe; this will of course vary with the size of the inflation: the globe extends from this point to the vent, and varies in size according to circumstances. The mouth is small, contracted, and sub-quadrangular; the teeth are two in each jaw, large, meeting in the centre, and pointed, so that those of the upper and lower jaw look like a parrot's bill; the upper pair, when the mouth is closed, overhang the under. Eye moderately large; iris bluish, with grey stripes or patches, 8-10ths of an inch in diameter, and 2⅓ inches from the snout. The pectoral fin is 2⅓ inches behind the eye, in a sulcus of the skin; anteriorly to it the skin is free and crescentic, and opens into the gills; behind it is continuous, with the common integument. The dorsal and anal fins are situated far behind, being 3½ inches anterior to the origin of the caudal fin, and on a fleshy prominence, and are opposite to each other. The fin-rays are, P. 15; A. 15; D. 18; C. 12; the ventral fins being absent. The vent is large. The globular appendage to the abdomen is large, and extends from near the mouth to the vent; it is covered with numerous stout and sharp spines over all its surface, but not above the line extending from the mouth to the vent. The spines at each point are five in number, four of which lie horizontally, in a radiating manner below the skin, the fifth rises from the centre of the four, and stands erect, and is much shorter and stouter than the others. They are numerous, and are arranged in lines running obliquely backwards and downwards. The skin is smooth, very elastic, and moves freely over the muscles beneath; from this peculiarity it affords great facility for the enormous distension to which the globe is liable. On dividing the skin, for the purpose of removal, it was separated from the fish beneath with the greatest facility. The sub-cutaneous cellular tissue was small in quantity and highly elastic, the cutaneous nerves very large. The common integument covered the globe, and consequently was not in contact with the abdomen or chest. The globe itself was formed of several

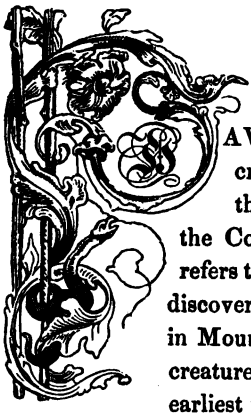
layers, the first of which was the skin; beneath, a layer of thin muscular fibres, those before and behind running in opposite directions, while the lateral ones passed transversely; the whole were much intermixed. Posteriorly, from the bones of the pelvis, or rather from the basement of the anal fin, passed several long slender muscles, anteriorly to about two-thirds of the length of the globe, and were inserted by expansion in the middle coat of the globe. Anteriorly, two long bones from the sternum passed obliquely backwards, one on either side, the whole length of the abdomen, from these the powerful circular fibres arose and assisted in contracting the globe in case of over-distension. Internally, the cavity was lined with a blackish-grey onucous membrance, which was reflected over the muscles of the abdomen, and passed through a large opening into the abdomen, further than this I had not an opportunity of examining. The stomach was empty, and the crop-like expansion was filled with air only. Mr. Darwin, who has given us an account of the habits of this fish, says, that when handled it gave out a most beautiful carmine fibrous secretion, which stained ivory and paper with a permanent brilliant red colour. This was not the case in the present instance. This rare specimen is now added to our collection.

It may not be improper to make a few remarks on the figures of this fish which I have an opportunity of consulting. The figure in Yarrell's British Fishes is not at all characteristic of it. It is much too deep, and the rising of the head and back far too great. In the specimen now taken there is no lateral line, as figured by Yarrell, and the gill-covers there drawn are merely the imagination of the artist; an imagination, however, which is copied and exaggerated in the figure given in Jardine's Naturalist's Library. Old Pennant is much nearer the mark, even to the shape of the caudal fin, than any of the others, though he has made the tail too slight. The body is variously, and when recent, prettily tatooed. An arched line passes over each eye; from its posterior end a transverse junction takes place; and then, on either side, proceeds a long line variously arched, and straightened, to near the end of the caudal fin.

Additions to the Cornish List of Zoophytes.

By RICHARD Q. COUCH, Esq., M.R.C.S.,

ONE OF THE SECRETARIES



AVING on a former occasion given a description of all the *Zoophytes*, which, up to that time had been discovered as living in the Cornish waters, the following short account refers to the most interesting which have since been discovered, and especially such as have been found in Mount's-bay. Everything connected with these creatures possesses great interest. Among the earliest productions of Creation, playing important parts in the mutations of the earth's surface, having forms approaching to the vegetable, while they are altogether of animal character, all gives an interest to them which otherwise they might not possess. What in the higher, and indeed even in the lower, order of animals, may be considered among the essentials of the animal kingdom, are here altogether disregarded, and entirely superseded by what is equally considered to be peculiar to vegetables. These circumstances having been previously noticed need not be again referred to here.

In all animals, as the animal is popularly understood, every part, when once formed, is retained naturally as long as the creature shall live,—each organ being equally permanent with the creature itself: in these productions the reverse of this is the case. In the summer there is, as in vegetables, a re-production of

vesicles, which fall off immediately they have performed their office, to be re-produced next year. Like vegetables, they are, many of them, arborescent, and shed their branches: these are separated from the parent trunk precisely in the same way as the leaves of a tree are shed from the branches at the approach of autumn. This is altogether unlike animals, for, except from injury, they retain every part. The next similarity to vegetable physiology, is the annual decay of the year's growth, down to the roots, and, on the approach of spring, either from seed previously sown, or from existing roots, up spring the same kind of production as existed the year before, again to wither and to re-grow. These creatures when in a state of activity give out a great deal of phosphorescent light. The added species are:—

Laomedia obliqua.

Sp. ch.—Confervoid; slender; stem jointed; joints above each cell; cells alternate, on ringed footstalks, shorter than the cells. Apertures oblique, patulous, unarmed.

Campanularia, Lister, Trans. Royal Soc., Ann. 1834, p. 372. & Pl. 8, fig. 5. *Laomedia obliqua*, Johnston's Brit. Zooph., 2nd edit., p. 106, Pl. 28, fig. 1.

Habitat.—Parasitical on sea-weed; Mount's-bay, Dec.

This species seems to be more delicate than the others belonging to the same genus. It is more slender, and less branched: it is about three-quarters of an inch in height generally, but several specimens were rather more than an inch: it is horny, confervoid, and slender. The stem is irregular or zig-zag in shape. The cells are alternate, with oblique even patulous apertures, with a thick longitudinal ridge along its inferior surface: this ridge appears to be a continuation of the stem, into which the cell seems inserted. Between each cell is a joint; that part of the internode on which the cell-stalk rests is kneed or bent. The footstalk is shorter than the depth of the cell, and has two annulations. It grows like the other species, from creeping tubular fibres. The specimens found do not exactly correspond with the figures given by Johnston, but

yet approach sufficiently near to determine the species to which they belong.

Beana mirabilis.

Sp. ch.—Creeping; horny; cells solitary, with large teeth in two rows on one side of whole length of the cell.

Beana mirabilis, Johnston, Ann. Nat. Hist., Vol. v., p. 272. Brit. Zooph., 2nd edit., p. 372, figs. 69, 70.

Habitat.—On the roots of *Laminaria digitata,* Mount's-bay; R. Q. Couch. On a valve of *Pecten maximus,* dredged off Scilly; Mac Andrew. Attached to the surface of a cork, at Bream sands, four miles west of Falmouth; W. P. Cocks.

This very minute coralline I have found among the roots of the sea-weed at the Battery rocks, near low-water mark. It is parasitical and creeping. The roots are so small as scarcely to be seen by the naked eye, and if not for the cells, which stand almost erect, it would escape detection altogether. The creeping fibres are tubular, and irregular in their trailing over the substance on which they grow. The cells are somewhat large, nearly erect, and sessile, springing immediately from the tubular root; they are much compressed, and at one of the compressed margins are two rows of large, distant, and irregular teeth; the other and plain surface bulges below, but is contracted above; the mouth is quadrangular, and guarded by four teeth. The spines of the keel, or lateral denticulations, vary from five to eight in number. It is of a light brown colour.

This species is so small, that it can hardly be detected by any one except those specially on the look out for it. It is a very beautiful creature, and was first discovered by Mr. Bean of Scarborough, after whom it is named.

Sea Mats.

Lepralia Lamornæ.

Sp. ch.—Calcareous; encrusting; cells much immersed, semi-erect; surface plain, or only rugated transversely. Apertures

sub-quadrangular, large, and patulous, with an obtuse denticle on the proximal lip; between the cells two rows of large punctures.

Habitat.—On a stone from Lamorna, Mount's-bay, in company with *L. fenestralis.*

This I found encrusting on a stone in small patches. It is calcareous, white, and the cells seem very much immersed, which are shining, plain, or only slightly furrowed transversely. The mouth is very large, with a slightly raised rim, and an obscure tooth on the proximal lip. The cellular structure, between the cells, is somewhat small, and in some rows appears to be rather confused.

This species approaches to *L. granifera* in the arrangement of the cells, but they are more loosely compacted, larger, and without the infra-oral spine. The aperture resembles in general form that of *L. pediostoma*, which species, in fact, it greatly resembles, but differs from it in the spine on the proximal margin of the lip, in the surface of the cells being slightly furrowed transversely, instead of being punctured, and in having the intercellular beads, of which *L. pediostoma* is destitute.

L. glaucescens.

Sp. ch.—Encrusting. Cells small; urceolate; adnate minutely punctured. Apertures circular, contracted, unarmed, with a tubercle on one side.

Habitat.—On stones, on the Wherry rocks, Mount's-bay;—R. Q. Couch.

This species occurs in small white encrusting patches, varying in diameter from a quarter to half an inch. The cells are not immersed, or heaped together, but are adnate throughout; they are small, closely arranged, and have an opalescent appearance. The surface is finely punctured. The mouth is terminal, contracted, and more or less circular, unarmed, with a slightly elevated rim. On one side of the mouth, and near the next cell, is a large

pearly tubercle; but in some cells two of these protuberances were formed, one on each side. In a young state this resembles several other species. In form the cells resemble those of *L. simplex*, but they are more closely aggregated, and the surface is punctured, and the tubercle is lateral. From *L. granifera* it is distinguished by the cells being wider apart, the tubercle lateral, and the mouth circular. With any other it is not likely to be confounded,

L. punctata.

Sp. ch.—Cells urceolate, vitreous, speckled with calcareous points, arranged in transverse rows; aperture contracted, narrow, uneven, with three or four denticles.

L. punctata, Johnston's British Zoophytes, 2nd edition, p. 312, Pl. lv., fig. 19.

Habitat.—Stones, low-water, Battery rocks, Penzance.

Dr. Johnston considers this to be *L. pedilostoma* of the Cornish *Fauna;* but it is entirely distinct from that species. It grows in small patches, is vitreous, and covered with distinct calcareous points, arranged more or less transversely across each cell. The cells are semi-alternately arranged, are urceolate, with very contracted apertures, armed with three or four denticles. There is a tubercle below the proximal lip.

L. Landsborovii.

Sp. ch.—Encrusting, in circular patches. Cells oval, hyaline, granulated. Granules large and distant. Aperture circular.

L. Landsborovii, Johnston's Brit. Zooph., p. 310, Pl. liv.. fig. 8.

Habitat.—On a valve of *Pecten maximus*, dredged off Scilly; Mac Andrew. Mount's-bay; R. Q. Couch.

Encrusting, in circular patches. The cells are oval, elongated, vitreous, and transparent, covered with numerous distinct granulations; apertures terminal, circular, with a rim when dry. This description differs slightly from Johnston's, but no doubt refers to the same species.

L. ansata.

Sp. ch.—Cells globose, slightly punctured; aperture oblique, sub-terminal, contracted, with a fissure on the proximal lip.

L. ansata, Johnston's British Zoophytes, 2nd edition, p. 307, Pl. liv., fig. 12.

Habitat.—On a stone from deep water; Fowey; Mevagissey.

Crustaceous; in circular patches of a brownish-white colour. The cells are ovato-globose, minutely punctured with lateral, sub-terminal, hollow spines, and on most an obtuse spine near the mouth. The aperture is small, contracted, with a fissure on the proximal lip.

L. linearis.

Sp. ch.—Cells adnate, obscure, in radiating lines. Aperture sub-terminal, small, with a tubercle on each side.

L. linearis, Brit. Zooph., 2nd edit., p. 308, Pl. liv., fig. 11.

Habitat.—On *Ostrea edulis,* on an old anchor, taken up off Mousehole.

Crustaceous; in white circular patches, with the cells arranged in radiating lines, having a distinct radiating septum between each row. They are sub-quadrangular, and the surface is obscurely granular. The mouth is sub-terminal, small, with a notch on the proximal lip, with two tubercles, one on each side.

L. granifera.

Sp. ch.—Cells urceolate, granulate; a sub-labial tubercle; the aperture somewhat triangular.

L. granifera, Johnst. Brit. Zooph., 2nd edit., p. 309, Pl. liv., fig. 7.

Habitat.—On a stone, Mount's-bay; Fowey and Looe.

Crustaceous, in circular patches. The cells are small, numerous, and quincunically arranged; they are oval, and much contracted towards the mouth. The surface is granular, with a large tubercle

near the lip. The mouth is sub-triangular, with the angles rounded off. Occasionally marked with transverse folds at the oldest portions.

L. auriculata.

Sp. ch.—Adnate; cells small, obscure, more or less quadrangular, in radiating lines, with inter-cellular septa.

L. auriculata, Johnston's Brit. Zooph., p. 310, Pl. liv., fig. 8.

Habitat.—On a *Pecten* off Mount's-bay; R. Q. Couch. On a *Pecten* off Scilly; Mac Andrew.

Crustaceous; closely adherent. The cells are small, and are arranged semi-alternately, in radiating lines; they are more or less angular in outline, and the surface is obscurely punctured. Between the lines of cells is a distinct septum, resembling in this respect, very closely, *L. linearis*. The mouth is small, subterminal, with a notch on the proximal lip.

L. hyalina.

Sp. ch.—Cells tubular; thin, transparent, smooth; aperture circular, unarmed.

Cellepora hyalina, Lin. System, 1286. Lamour. Cor. Flexib., p. 38. *Berenecia hyalina*, Hassal. Ann. Nat. Hist., vol. vii., p. 367. *Lepralia hyalina*, Johnst., 2nd edit., p. 301, Pl. liv., fig. 1.

Habitat.—On sea-weed, Mount's-bay; Polperro; Fowey.

Growing on sea-weed in circumscribed patches: it is very thin and semi-vitreous. The cells are long, slender, and tubular; they are partially immersed. They are arranged in radiating rows, most commonly in a semi-alternate manner; they are smooth, or but slightly furrowed transversely, and almost translucent. The mouth is oblique, circular, unarmed, and has a slightly elevated even rim. With age, the sides of the cells pass from a perfect transparency to a more or less semi-opacity. This species has the character of a *cellepora*, in the occasional heaping of its cells, and resembles

especially the *C. pumicosa;* this arises from the organizable lymph being effused over as well as around the old cells, and from this circumstance forms a link between *Cellepora* and *Lepralia.* Mr. Peach has found it also at Fowey, and forwarded specimens to Dr. Johnston.

L. ventricosa.

Sp. ch.—Cells inflated; oval; aperture oblique, large, with a spine on the proximal, and four on the distal, lip.

Lepralia ventricosa, Hassal. Ann. Nat. Hist., Vol. vii., p. 412. Johnston's Brit. Zooph., 2nd. edit., p. 305, Pl. liv., fig. 5.

Habitat.—On shells, Mount's-bay.

In circumscribed patches. The cells are distinct, and nearly as wide as they are long. The surface is minutely roughened; and the apertures are large, oblique, and armed with five teeth, one on the proximal, and four on the distal, margin.

Cellularia Hookeri.

Sp. ch.—Cells rounded, diverging, projecting; Sir W. J. Hooker.

Flem. Brit. Anim., p. 539. Johnston's Brit. Zooph., p. 338, Pl. lx., figs. 1 and 2.

Habitat.—On a lobster, from deep water, off the Runnel stone; May.

The specimens examined were taken from the sides of a large lobster, in connexion with numerous other *Zoophytes;* the largest specimen did not exceed half an inch in height. The polypidom is erect, stout, of a dirty brown colour, and dichotomously branched; branches are short and wide compared with other members of the genus. The cells are in three rows; the apertures are oval, and opening nearly in a line with each other, and are all on one side. It is fixed by numerous slender fibrous roots, which are continuous with the longitudinal rugæ at the back of the cells. At the back of the cells are numerous long, slender bristles, which bend over the front of the cell. In growth this species resembles a *Flustra.*

They are at first small, then gradually increase in size for five or six rows, and then, instead of an additional cell, a new branch is given off.

Pavonaria.

Gen. ch.—Polype mass linear, elongate, quadrangular; polypes sessile, retractile, arranged sub-spirally on one side only of the rachis. Tentacula with intermediate spinules.

The only species of this genus recognized as British is *P. quadrangularis;* discovered by Mr. Mac Andrew on the coast of Scotland. The present species is a slender, flexible rod, of a straw yellow colour, and about two inches in height. The lower portion is generally of a yellowish-brown colour, which decreases in tint as you ascend, till it becomes the yellowish straw. The polypes are numerous on all parts of the polypidom. They do not arise from laterel projections, but protrude from small circular openings, which are equidistant, and are arranged spirally round the rachis. The rachis is not quadrangular but round, and therefore the present species may be supposed not to belong to this genus; but it agrees so closely in most other particulars that I think it must be referred to it. The polypes I am unable to describe, as they were dead before the specimen came into my possession. I have found it on the Corwidge crabs.

On a Crucifix found in Penzance.

By RICHARD EDMONDS, Jun., Esq.

IN taking down some old walls near the Quay of Penzance last year (1850) adjoining, or on the site of, what was in all probability the first chapel ever erected in this town, a rudely carved piece of granite was removed, bearing on one side a defaced crucifix in relief, and on the opposite side a figure seated on a chair or throne:—the extreme length, breadth, and thickness of the stone being respectively about 4 feet 3 inches, 1 foot 9 inches, and 1 foot 3 inches.

The figure on the cross, judging from its lower half, which is the least defaced, appears to have been about 2 feet in length, and to have resembled those on the crosses in Sancreed church-yard, and on the southern side of St. Michael's Mount. The "cross," however, which is above the well on the Mount, has, like this relic, a crucifix on one side and a seated figure on the opposite.

The dilapidated old chapel from which this relic was taken about seventy years ago to build the wall lately taken down, was on the west side of Barbican-street, leading from the Quay to the Battery, and may have been the one said to have been dedicated to St. Anthony; and it was probably erected centuries before 1397 when St. Mary's chapel was first licensed. *It,* indeed, or a preceding one on the same site, might have been amongst the earliest ecclesiastical buildings in Mount's-bay; for Penzance, from its peculiarly favorable position, must have been a fishing-town quite

as far back as the first introduction of Christianity into Cornwall, and no spot in the ancient part of Penzance was more suited for a chapel than this. It may, therefore, be fairly supposed that the mutilated rude crucifix now described, which about seventy years ago stood near the font at the west end of this old chapel, was coeval with the first Christian chapel ever erected in Penzance and as early as the sixth or seventy century.

Penzance, 23rd October, 1851.

Copy of a Letter to the Right Rev. Bishop of Winchester, about the wreck of Sir Cloudesly Shovel, at Scilly.

"St. Hilary, November 16th, 1707.

"My Lord!

"Your Lordship's Commands having been signified to my Brother at Scilly, he immediately made ye strictest enquirey y^{t} was possible, all the bodies y^{t} had been thrown ashore & buried & being told of one buried at Agnes about Mr. Trelawny's age, was resolved to have him taken up in order to view him, whether it was he or no; He had seen the young Gentleman at Torbay, but not willing to depend upon his own judgment desir'd the Captn of ye Phenix ffire ship that was stranded there who knew Mr. Trelawny intimately well all the voyage to goe wth him. As soon as they had ye body up, they found it actually to be ye same, thô somewhat alter'd having been buried 11 days, & in ye water 4, however ye Captn presently knew him, & my Brother took care to have ye body brought over to St. Mary's, & interd it in ye Chancel of the Church there ye 8th instant wth all ye marks of respect & honor, ye Island could show on such an occasion Some Captains & ye best of ye inhabitants being present, ye funeral my Brother took of his hair being cut & y^{t} so very close y^{t} ye left lock was not left to send over, & there is no room to doubt, but t'was ye body of poor Mr. Henry Trelawny. It has not been his good luck as yet to meet with anything belonging to him, but whatever of y^{t} nature happens to come to his hand, or knowledge your L^{d} will be sure to have a faithful account of it. They can say nothing in particular touching Sir Cloudesley's loss, only the man saved out of the Rumney tells them that Sir Cloud: was to the windward of all the Ships, and fired 3 guns when he struck, and immediately

went down, as the Rumney a little after did. Upon hearing ye guns, ye rest of the ffleet, that were directly bearing on the same rocks changed their course & stood more to ye Southward, or else in all probability they had run ye same fate, as never enough to be admired; how t'was possible men of so much experience could be mistaken in their reckoning, after they had ye advantage of a great deal of fair weather before hand, & no bad weather w^{n} they were lost. There is a great quantity of timber all round ye islands & abundance of sails & Rigging just about ye place where the ships sunk, & a mast, one end a little above water wch makes 'em conclude an entire ship to be foundered there because all ye force they can procure is not able to move ye mast. The Eagle most certainly is lost too & I wish no other of the Squadron may be wanting, beside those, Thô I'm heartily sorry for ye loss poor England has sustained of so many men, & in a most particular manner for ye share your L^{p} has in it.

"Mr. Quash by some means or other may convey y^{s} letter to y^{r} Lordship's hands before you come to Chelsea for which reason I have enclosed to him, & am with all possible duty, & my hearty wishes for ye happiness of your Honb^{le} Family, my Lord

"Your Lordship's
Most faithful
&
Obedient servant
JOHN BEN."

"The Hound came from Scilly yesterday,
& was very near being taken, having 3
Privateers behind, & 2 before her, but
she escaped by creeping along y^{e} shore,
where they w^{d} not adventure."

An Address from the Tinners of Cornwall, to William and Mary.

"To the King and Queen's most Excellent Maties.

"The humble Addresse of your Ma$^{ties'}$ most Dutifull and Loyall Subjects the Tynners of your Ma$^{ties'}$ County of Cornwall.

"The Powerfull hands of Eternall Wisdome having by a Wonderfull Providence setled your Maties on the Imperiall Throne of this Realme, and thereby Rescued our Religion, Restored our Liberties, and Revived our Languishing Laws, We cannot but with hearts as full of Admiration as Gratitude render our vnfeigned Thanks to the King of Kings for disposing and enabling your most Sacred Maties to be the Glorious Instruments in soe Miraculous a Preservation, which seemed to transcend all humane Expectation. And likewise to your Maties for your great care of, and concern for, the Protestant Religion as by Law established, then which nothing can be more Deare vnto vs. And now we begg your Maties to believe that we ever will be as really we are, ready on all Occasions to Expose our Lives and ffortunes in Defence of your Ma$^{ties'}$ most Sacred persons against the Machinations of all all Enemyes to your Maties and these Nations, Which that your Maties may govern in long Peace, and Plenty, and be hereafter Crowned with everlasting ffelicity, are and shall be the Prayers of

"Your Ma$^{ties'}$ most faithfull and
most Obedient Subjects and Servants."

Report of the Exportation of Pilchards, for 1851.

By Messrs. BOLITHO & SONS.

Penzance, 24th December, 1851.

The total quantity of pilchards cured this season has been 26,744 hogsheads, (the average of ten years has been 23,446 hogsheads.)

There were caught,—

	In Mount's-bay.	East of Lizard.	St. Ives.	Total.
In July	499	....	....	499
„ August	3,035	2,058	273	5,366
„ September	2,220	....	....	2,220
	5,754	2,058	273	8,085
„ October	1,237	1,120	16,302	18,659
	6,991	3,178	16,575	26,744

The quality of the fish caught up to the end of September was very fair. The general price was from 43*s.* 6*d.* per hogshead to 45*s.* to the curer, and nearly the whole were sold.

The fish caught at St. Ives, in October, (principally on the 2nd and 17th) were of very good Autumnal quality—though we have seen larger, (a very large quantity was enclosed in the nets on the 28th October, but in consequence of a storm on the following day the whole escaped.)

The greater portion of the October fish has been shipped on account of the curers, as they would not (with the exception of a few, who, sold at 46*s.* 6*d.* and 48*s.* 6*d.*) accept less then 50*s.* per hogshead.

The whole would have found buyers at 46*s.* per hogshead. It will be noticed that the last cargoes have been despatched nearly a month earlier than usual.

PILCHARDS EXPORTED, 1851.

Vessels.	Hhds.	Port of Shipment.	Date of Sailing.	DESTINATION.				
				Genoa.	Leghorn.	Civita Vecchia.	Naples.	Adriatic.
Ann	518	Penzance	24 September		518	..	..	..
Penelope	498	Mevagissey	24 „				498	..
Mincarlo	480	Penzance	7 October	480	..	..	..	..
Killiow	450	Ditto	10 „					450
Galatea	700	Ditto	14 „					700
Robert Henry	477	Mevagissey	15 „		477	..	..	..
Eclipse	488	Penzance	15 „					488
William Harris	514	Mevagissey	16 „				514	..
Betsey	352	Penzance	20 „	352	..	..	..	..
Earl of Devon	600	St. Ives & Penzance	21 „				600	..
Azorian	362	Penzance	23 „	362	..	..	..	..
Eliza Fox	455	Looe, &c.	24 „		455	..	..	..
Vesper	358	Penzance	26 „			358	..	..
Magic	540	Ditto	4 November					540
Electric Flash	630	Ditto	6 „				630	..
Pomona	663	Ditto	7 „					663
Tell Tale	400	St. Ives	11 „	400	..	..	..	..
Jasper	520	Ditto	12 „		520	..	..	..
Countess Morley	427	Ditto	12 „		427	..	..	..
Carried forward	9,432			1,594	2,397	358	2,242	2,841

PILCHARDS EXPORTED, 1851—*continued.*

Vessels.	Hhds.	Port of Shipment.	Date of Sailing.	DESTINATION.				
				Genoa.	Leghorn.	Civita Vecchia.	Naples.	Adriatic.
Brought forward	9,432	.....	.....	1594	2397	358	2242	2841
Phillyra	538	St. Ives	13 November	.....	.....	.....	.....	538
Petrel	550	Ditto	15 "	.....	.....	.....	550	..
Abeona	578	Ditto	15 "	.....	.....	.....	578	..
Martha	450	Ditto	15 "	.....	.....	.....	.....	450
Ono	630	Ditto	15 "	.....	.....	.....	.....	630
Fire-fly	550	Ditto	19 "	.....	.....	.....	.....	550
Queen of the Isles	422	Ditto	19 "	.....	.....	.....	.....	422
Farewell	569	Ditto	20 "	.....	.....	.....	569	..
Morton	590	Ditto	20 "	.....	.....	.....	590	..
Onward	550	Ditto	27 "	550	..	..	..	..
William Canynges	550	Ditto	27 "	.....	.....	550	..	..
Sylph	600	Ditto	27 "	.....	.....	.....	.....	600
Elizabeth	550	Ditto	29 "	.....	550	..	..	..
Mystery	570	Ditto	29 "	.....	.....	.....	.....	570
King Alfred	650	Ditto	3 December	.....	650	..	..	..
Courser	600	Ditto	3 "	.....	.....	.....	600	..
Roseland	500	Ditto	6 "	.....	.....	.....	.....	500
Why Not	600	Ditto	6 "	.....	.....	.....	.....	600
Carried forward	19,479	.....	.....	2,144	3,597	908	5,129	7,701

PILCHARDS EXPORTED, 1851—*continued.*

Vessels.	Hhds.	Port of Shipment.	Date of Sailing.	DESTINATION.				
				Genoa.	Leghorn.	Civita Vecchia.	Naples.	Adriatic.
Brought forward ..	19479	.....	.....	2144	3597	908	5129	7701
Savage ..	550	St. Ives	8 December ..	.....	.....	.....	.....	550
Rival	530	Ditto	11 "	.....	.....	.....	530	..
Hope	540	Ditto ..	12 "	.....	540	..	..	..
Supply	450	Ditto	12 "	450	..	..	..	..
Lelean ..	469	Mevagissey	12 " ..	.....	.....	.....	469	..
Gazelle	380	Falmouth	13 "	.....	.....	.....	.....	380
Ballinacurra Lass ..	530	St. Ives ..	16 "	.....	.....	.....	.....	530
Bess	535	Ditto	17 "	.....	535	..	..	.
Flying Fish	444	Mevagissey & Penzance	22 " ..	.....	.....	444	..	..
Sultana and Selina .	661	Penzance	22 "	.....	.....	.....	661	for orders.
Rovena	615	St. Ives	23 "	.....	.....	.....	615	
Stag	330	Ditto	23 "	.....	.....	.....	330	
Albert	830	Ditto ..	23 " ..	.....	.....	.....	830	
Matchless ..	371	Penzance	.....	.....	.....	.....	371	..
Uzella, *via Liverpool*	30	.....	.....	.....	.....	.....	30	..
Total	26,744	.....	.....	2,594	4,672	1,352	8,965	9,161

PROCEEDINGS OF THE GENERAL MEETING

OF THE

Natural History and Antiquarian Society

OF PENZANCE,

HELD IN THE MUSEUM OF THE GEOLOGICAL SOCIETY,
FRIDAY, OCTOBER 22ND, 1852.

The President, JOSEPH CARNE, Esq., F.R.S., F.G.S., M.R.I.A., in the Chair

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The following gentlemen were elected the Officers and Council for the ensuing year :—

President.

Joseph Carne, Esq., F.R.S., &c.

Vice-Presidents.

J. J. A. Boase, Esq. | T. S. Bolitho, Esq.
Richard Millett, Esq.

Council.

Rev. H. Batten.	R. Bolitho, Esq.	Dr. Montgomery.
J. S. Bedford, Esq.	E. Bolitho, Esq.	Richd. Pearce, Esq.
A. Berryman, Esq.	R. Long, Esq.	Rev. M. N. Peters.

Treasurer.

D. B. Bedford, Esq.

Secretaries and Curators.

E. H. Rodd, Esq. | J. N. R. Millett, Esq.
R. Q. Couch, Esq.

DONATIONS TO THE SOCIETY,

FOR 1852.

Numerous specimens of Natural History. By W. P. Cocks, Esq., of Falmouth.

A series of Foliaceous Lichens, rendering the Society's list complete, so far as known. By Mr. F. R. Pentreath.

A series of beautifully-prepared Fungi, named by the Rev. Mr. Berkely and Mr. Wood. Collected and presented by Master Tracy Millett.

Models of the Giant's Castle, the Giant's Grave, the Tolmen, and two of the Clapper rocks, all in the islands of Scilly. By the Misses L. and M. Millett.

A Bronze Spear-head, from the tin-stream of Pentewan. By Mr. Stocker, of St. Austell.

A Wasp's Nest. By the Rev. G. C. R. Festing, of Paul.

Rubbings from Monumental Brasses in Lanteglos Church, by Fowey. By Mr. N. Hare, Jun.

Corallines from Algoa Bay. By Mr. Blewett, of Plymouth.

Fragments of Charred Wood and Grain, from an ancient Hut-circle at Weston-super-Mare. By S. R. Pattison, Esq., F.G.S.

Copy of a Seal of Milbrook. By Mr. Hare.

Spotted Crake and Snipe. By J. N. R. Millett, Esq.

Archæological Notice of Weston-super-Mare. By S. R. Pattison, Esq., F.G.S., of Launceston.

PRESIDENT'S ADDRESS.

YOU will, no doubt, learn from the Report of the Council which will be laid before you to-day, the nature and extent of the researches of our society during the past year, and the amount of success which has attended their labours. I shall, therefore, not trench on their province; but I may remark that, judging by what has been already done, the natural history and the antiquities of this district, to which we in general confine our researches, are, by the labours of this society, likely to be as fully investigated and described, as those of any similar district in the kingdom. Our Reports already comprise lists (carefully ascertained) of our Birds,—Lepidopterous Insects,—*Echinodermata* or Star Fishes,—Land and Fresh-water Shells,—*Algæ* or Marine Plants,—Mosses,—and Stone-Lichens; and we have now to add a list of *Fungi*, authenticated by carefully preserved and well arranged specimens, which are to-day exhibited to the society, accompanied by a valuable communication. This collection we owe to the industry of a young gentleman who has already often served the society, and whose present contribution would do credit to a much older votary of science. He has not yet found time to include the *Agarics* or mushrooms, but I hope a work so well begun will be continued until our list shall be complete. On this point I would remark that as some species of mushrooms are found only in hothouses, gentlemen may easily give us valuable assistance by desiring their gardeners to send to

the society any thing of this kind which they may discover. The society is indebted to the same individual, Master Tracy Millett, for other communications, which will be particularly noticed in the Report; and also to Mr. F. R. Pentreath for additional lichens, which, as far as we know, complete the list of the lichens found in the West of Cornwall.

Rarely has our annual meeting passed over without a notice of some new species, either of animal or vegetable, being discovered and added to our lists. Last year a species of *Crustacea* was described, and announced as altogether new to science. This has since been fully confirmed by Professor Bell of King's College, after a minute examination. A similar fact is recorded in our present Report. In the last published number of Professor Bell's excellent work on the *Crustacea* of Great Britain, he has quoted largely, and with due acknowledgment, from the Papers printed in our Reports.

The attention of Naturalists has of late been especially drawn to the singular changes which are found to take place in certain species both in the vegetable and the animal kingdom. In the former, the Ægilops grass has been particularly referred to, in which, by continued and careful cultivation, the plant is said to be gradually advanced, in each successive year, from a comparatively low type to a much higher one; and in this way, in the course of perhaps a dozen years, it gradually passes from a mere grass into wheat: whether this is its state of perfection from which it can advance no further, does not yet appear. It is maintained by some that the improved plant never returns to its original stock, but others have expressed a contrary opinion. It must be acknowledged, however, that the experiments which have led to these conclusions have been neither sufficiently numerous or decisive to form the foundation of such important doctrines; but the strange and unaccountable, yet undeniable, changes which are continually taking place in the vegetable and the animal, and, I will add, the mineral kingdoms, ought to make us hesitate to deny the possibility of such facts merely because they appear to be opposed to every thing to which we have been accustomed.

In the animal kingdom, the transformations which take place in many of the lower orders, are well known, but the changes to which I now particularly allude are better expressed by the term which has been given to them* "alternations of generations." It is now an established fact that some animals of the lower invertebrate orders produce an offspring which resemble the parents in scarcely a single particular, differing both in form and habit: these again, when arrived at maturity, bring forth another progeny unlike themselves, but returning again to the form and nature of their first parents, so that a maternal animal does not meet with its own form in its own brood, but in its descendants of the second and the successive alternate generations, or, as it has been humerously expressed, "a mother is not like its daughter or its own mother, but resembles its sister, its grand-daughter, and its grand-mother."* Among the *Zoophytes*, for instance, certain species of *Medusæ* produce the *campanularia* and the *coryne*,—quite unlike their parents, and these subsequently give birth to the *Medusæ*. Amongst the *Mollusca*, the *Salpæ* and *Ascidiæ* also appear to be governed by the same law. In some animals the alternations extend to the descendants of the third and even the fourth generation before the return to the form of the first parent. In fact "alternations of generations" are not at all uncommon in the lower invertebrated animals, and they are in all cases so constant and determinate that they cannot be accidental, but must proceed according to the fixed laws of Nature. They must not however be confounded with metamorphoses, such, for instance, as the change which takes place in the *balanus*, or barnacle, whereby it becomes a free swimming *crustacean*.† In true metamorphoses the changes occur in the creatures themselves, and one individual goes through every stage; but these are quite dissimilar to those to which I have been alluding.

Thus in the study of even the lower orders,—the invertebrate orders,—of animals, the most apparently insignificant objects may open to the mind what may indeed be called the "wonders of Creation."

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* Steenstrup. † Owen.

On the subject of Antiquities,—having already in our museum, through the kind and persevering efforts of the Misses Millett, models of all the cromlehs in Cornwall, and most of our other remaining monuments of antiquity, we had little expectation of any further additions, but these ladies have laid the society under additional obligation to them. They have lately visited the Isles of Scilly, and we have now before us the result of their labours there, in models of the entrenchment called the Giant's castle,—the large *kist-vaen* known by the name of the Giant's grave,—the rock styled by Dr. Borlase a *Tolmen*, now called the Drum rock, —and some rocks which have been weather-beaten into the most grotesque and singular forms.

Under this head may also be noticed the discovery of several ancient boats in the vicinity of Carclase mine near St. Austell, although not strictly in our own district. They are no less than sixteen in number, and were found 22 fathoms below the surface, in what had probably been formerly a canal. A particular description of them was laid before the Cornwall Geological Society at their last meeting.

I am glad to find that, in some of the schools in this town, some knowledge of natural history is imparted to the more advanced pupils: an instance of the advantage of this has lately occurred. Two school boys walking on the beach, espied a fish which, from the description they had read, they immediately recognised as the Globe-fish, and after some efforts they captured and brought it to one of our secretaries.

In conclusion I would beg to suggest to the society the establishing another order of members. We frequently receive information on various interesting matters, particularly with respect to birds, from persons residing in different parts of this district, and especially from the Isles of Scilly; I would propose the election of such persons, and of others capable of serving the society in the same way, as corresponding members, having all the privileges of other members (except in the government of the society), without the payment of any subscription.

REPORT

THE council have again to report to the society the continued activity of the members. In no year have greater exertions been made, or have been made with greater success, than during the past. Sections which previously have not been touched by us, and which are most commonly avoided by even older societies than our own, have been examined with care, during the past year, with great benefit both to our museum and our reports.

Among the antiquities we have again to acknowledge the zeal and intelligence of the Misses Millett on our behalf, in the presentation to our museum of models of the monuments of the Scilly Isles,—including the Giant's castle, Giant's grave, and Tolmen, beside others of some of the natural peculiarities of the rocks. These, with their former donations, are so valuable, that the council greatly lament their incapacity of offering them such space as their value and beauty demand.

In the department of natural history specimens of almost every class are preserved, and waiting for increased accommodation to take their place in our collection. Among the *Mammalia* but little has been done, and the prospects of any new discovery in that division are but slight.

ORNITHOLOGY.

Among the birds, our acquisitions have been numerous and valuable. Among the rarer species recorded as having been taken since our last meeting are three specimens of Montagu's harriers, and one of the osprey, in the Islands of Scilly: from the same neighbourhood we have a specimen of that rare bird the Iceland gull, and one of the gull-billed tern, the last of which had not before been recognised as Cornish; to this we have also to add as new to our *Fauna* the Kentish plover. Of the rarer kinds of Cornish birds, the great grey shrike, reed wren, fire-crested regulus, Richardson's pipit, Continental white wagtail, the lesser tern in adult summer plumage, and the wood sandpiper have occurred: these are valuable additions made by the labours of our members.

ICHTHYOLOGY.

Among the fish, we have again to record the capture of the plain bonito, anchovy, and torpido, and to these must be added the occurrence of two specimens of the globe-fish in Mount's-bay and one at St. Ives, and all at the same period as the one that was captured in Mount's-bay last year; so that the scarcity of many species may arise from our ignorance of their habits and migrations.

CRUSTACEA.

Among the *Crustacea*, the species described last year as new has again been discovered, and the metamorphoses common to all this class have been detected in it. The spider *Hyas*, *H. aranea* and *H. coarctata*, rare species in Cornwall, have been dredged in Mount's-bay. Of the common harbour crab *(C. mœnas)* a variety has been brought to the notice of the society; its chief difference being in the waving of the front, there being four instead of three

denticulations, and the eyes are wider apart. A specimen of the nipper crab *(P. Henslowii)* has been found at Mousehole. The pea crab, in two instances, has been taken in the common cockle. Of the hermit crabs, we have to record the capture of the common hermit, Prideaux's hermit, *P. Lævis*, and *Handymanii*, beside two others; and the *Munida Rondeletii* has been taken off the Runnel stone: these and several other of the rarer species have been found. Our examinations during the past year have been carried on chiefly among the least known forms; many of them are exceedingly grotesque in their outline: all of these are now described as Cornish for the first time, and one at least is altogether new.

ZOOPHYTES.

Among the *Zoophytes*, many of our rarer species have been examined, especially such as have just been added to the Cornish list. In the *Coryne* and kindred genera, those strange phenomena of the alternations of the generations of animals have been observed. The *Zoanthus* has been taken on several occasions. *Crisia setacea* and *tubulosa* have also occurred.

MOLLUSCA.

Among the *Mollusca*, several of the nudi-branchiate genera have been detected and their development observed. These we hope at some future time will be communicated to the society.

BOTANY.

In the Botanical department we have had several very zealous labourers. The Misses Millett during their visit to Scilly, among other things made an extensive list of the flowering plants of the Islands, which will be printed in our Report. During the past year we have been visited by Mr. Wood, a distinguised Botanist. He discovered the *Euphorbia pepilis* in Scilly, which is rendered the more interesting from this rare plant being apparently extinct in its former habitat at Marazion. He saw also, in Mr. Mayne's possession, in St. Agnes, as well as growing and in flower, a specimen of *Artholobium ebracteatum*, hitherto supposed to be confined

to Tresco. The *Galium Vaillantii* is common about the houses at Sennen cove. In the course of his researches, Mr. Wood discovered that the purple *Atriplex*, so common on our shores, formerly called *A. rosea*, is really the *A. Babingtonii* of late authors.

Mr. Babington, in his work on the British Flora, describes three species of *Zostera*. The *Z. Angustifolia* is common in our bay, but it is the opinion of Mr. Wood that we also possess the *Z. marina*, as a form with very broad leaves is found at Sennen cove and at the Scilly Islands, growing with the *Angustifolia*; but it has not yet been detected in flower here, so that some uncertainty still remains on the subject.

The *Borrera flavescens* has been discovered in fruit. This is worthy of especial notice, as it has never been found in that state in Britain out of Cornwall; and we believe, that except one specimen in the collection at the Truro Museum, all the specimens have been taken from the neighbourhood of Penzance.

The *Botrychium lunaria* and *Ophioglossum vulgatum* have been found at Scilly by Master Tracey Millett, the former of which is, we believe, new to the western division of the county.

Among the Lichens several interesting additions have been made to our list, among others we may mention the *Myriangium Duriei*, a genus closely allied to *Collema*. It has been recently detected growing sparingly in Guernsey, in a barren state, by the Rev. T. Selway. About Penzance it is not uncommon, and produces fruit very freely. In addition to a former collection by Master F. R. Pentreath of the wood and stone lichens, he has this year presented to our museum the foliaceous kinds; these make our collection complete for the district. The *Sticta crocata* found last year near Penzance, has been found this year by Master Millett in Scilly, in a much higher state of perfection than with us.

A valuable collection of *Fungi*, by Master Millett, has this day been offered for our acceptance. It is a large collection, and beautifully arranged, and we hope that what has been so well begun will be continued till every species be added to our museum. Amongst these there is a new species, which Mr. Berkely has

called *Peziza Cornubiensis*, and among those new to our *Fauna* is *Atractea flammea*, which has only been recorded hitherto as a native of Carolina. Among the *Fungi* worthy of notice are—

Polyporus ulmarius	*Sphœria gastrina*
——— *fragilis*	——— *Eryngii*
Thelephora viscosa	——— *corallina*
Peziza Cornubiensis	*Septoria Ralfsii*
——— *heristomialis*	——— *lithius*
——— *Œnanthus*	*Sphœronema vonde*
Cenangium fuliginosum	*Atractium flammea*
Mematelia encephala	

Though it seems to be but an endless repetition of an old tale, the council again seriously directs the attention of the society to the absolute necessity for more extensive room in which our collection may be exhibited. It is this alone, which now acts as a dead weight upon our exertions.

EDWARD HEARLE RODD,
J. N. R. MILLETT,
R. Q. COUCH,
} *Secretaries.*

Oct. 22nd, 1852.

Notice of Additions to the Cornish Catalogue of Birds.

By EDWARD HEARLE RODD, Esq.

ONE OF THE SECRETARIES.

(Accidentally omitted in the Report for 1851.)

THE past year has remained, up to within a short period of our anniversary, unproductive of any birds, either new to our Cornish *Fauna*, or of any especial interest. During the present autumn, however, the Isles of Scilly have again contributed two valuable additions to our already well furnished list of British Birds. The two species referred to are the Ortolan bunting *(Emberiza Hortulana)* and the whiskered tern *(Sterna leucoporeia)*. The former is very nearly allied to our common yellow and cirl buntings, and both the female and immature male very closely resemble the female of our common wayside yellowhammer. Its smaller size, however, and the colour of its beak, which in the Ortolan is of a dull red, the white orbits or eyelids, the prominent and uniform reddish-brown which prevails in the breast of the adult, and more or less in the immature bird, the delicate green of the head and neck of the adult male, and other minor distinctions, are quite sufficient in themselves to show its specific value. On the Continent, where the bird is common, its characters are as well known to the naturalist as to the epicure. It was first described as the "green-headed bunting," from a specimen obtained in the neighbourhood of London, which was for some time the only recorded British example: a second instance of its occurrence enabled Mr. Bewick to figure and describe it under the above title, but only in the later editions of his well known work on British Birds. Other specimens have since been noticed in England, but this is the first recorded Cornish example.

The second new bird, the whiskered or moustache tern, is altogether much more rare, and but little appears to be known of its character or habits. It was first discovered in Hungary, by M. Natterer, of Vienna. Mr. Yarrell refers, in his work on British Birds, to the discrimination of T. C. Heysham, Esq., of Carlisle, enabling him to insert this species, "new to the British Catalogue, and of rare occurrence even on the European Continent." The only example that I can find recorded as having been obtained in Great Britain, besides the one now noticed, is that referred to by Mr. Yarrell, which was shot on the coast of Dorsetshire in 1836: the species had not been previously killed nearer than the coast of Picardy. In its immature state of plumage as exhibited in the present example, it appears to bear a considerable resemblance to the young of the black tern, but it is superior in size, the tail is much more deeply forked, and the beak is different in form,—approaching to that of the gulls. This character of the beak is still more remarkable in another species of tern, called the "gull-billed tern." The connexion of the two genera, *Larus* and *Sterna*, is thus shewn, and presents another instance of the beautiful order by which Nature completes her chain in the Creation by successive links. It is to be regretted that so little appears to be known of the habits of this rare bird, whilst it is satisfactory to know that it possesses certain characters which are specific and decisive in themselves.

Note on the British species of "Lestris."

THE different species of *Skua* found in the southern coasts of England have hitherto generally been in the brown or immature state: the bird exhibited to the society to-day is an adult specimen of the Pomarrhine skua. The adult birds of this genus are distinguished, amongst other marks, by the two centre tail-feathers being elongated, this elongation being the greatest in each

species proportionably as each is less than the others in size. I received from Mr. Yarrell, in 1840, a communication on this subject, and he remarks, in reference to the British species of skua, as follows:—"This" (meaning the Pomarrhine squa) "is a rare bird in its adult state. There are four species known in England, and they all differ very much in size, but all have the middle tail-feathers elongated,—those of the largest species being the shortest, but in each species, as they decrease in bulk, there appears to be a corresponding increase of the length of their two tail-feathers, and it is remarkable that the difference in length in all the adult species is not perceptible, or scarcely so, for what each of the species wants in bulk of body is made up by the greater elongation of the two tail-feathers."

Observations on the progress of Developement of the young in some species of Crustacean Animals.

By JONATHAN COUCH, Esq., F.L.S., &c.

MEMBER OF THE SOCIETY.

IN some of the Reports of the Royal Polytechnic Society of Cornwall (for 1843 and 1844) there are Papers in which is traced a portion of the process of developement of the young of those genera of animals which are comprised in the kindred families of Crabs and Lobsters;—in them it is proved that the form of the embryo, as it comes from the egg, is very different from that which it afterwards assumes; so that in the progress of its growth it passes through a real metamorphosis. When this interesting fact was first announced by Mr. Thomson, it was either disregarded or denied by men of great eminence in science, especially on the Continent of Europe; for, besides that it seemed to contradict some of their own observations, it was further doubted, because the opportunities of that gentleman for inquiry had not been abundant. At present, however, and in no small degree through the proofs afforded by the Papers in the Reports of that Society, the fact of the metamorphosis in these genera of *Crustaceans* is generally admitted as true; and some gentlemen who had before expressed their disbelief have been led to doubt the accuracy of their former observations. But some hesitation may still be allowed, in regard to the exact nature or extent of these changes, as occurring in the different genera or families of *Crustaceans*. It is now acknowledged that actual experiments have been made

on only a few of the species or genera, and that the analogy of relationship is not a sufficient ground for inferring an uniformity of proceeding, either of natural habit or physiological action. We know that the former, and believe the latter, is liable to a change as we pass from one species to another, and what is an important mark of distinction in some classes will cease to mingle with the characters of others.

So far as my opportunities have extended, I see ground to believe that the metamorphosis of the young in their advancement to adult growth is not in an equal degree, nor even universal, in the different families of this class, but that it is confined to such of them as have their eyes elevated on pillars, and periodically throw off their crusty covering. On the contrary, the genera in which the eyes are always sessile, or not supported on pillars (and which according to my observations never throw off their crust or recover their limbs when lost, as is the case with those which bear their eyes on footstalks), are in the habit of producing their young ones from the egg almost or altogether perfectly formed. It seems further, that the greatest change or metamorphosis occurs in the short-tailed family, or crabs; and that too, not only by the shortening and doubling up of the caudal portion, which at their birth is much alike in crabs and lobsters, but also by a change in the shape of the carapace or principal shell.

A late opportunity for observation has enabled me to lay down the axiom, that, in the lobster at least, very soon after its birth, it approaches much more nearly to the perfect form than the embryo extracted from the egg a few days before is found to do. What is still more remarkable, and hitherto not suspected, my notes enable me to conclude that, so long as the eyes remain sessile, the growth of the body is by extension of the surface, as in the continually sessile-eyed genera, and not, as ever afterwards, by sudden expansion at the time when the case or crust is thrown off. In fact the lobster does not begin to experience the process of exuviation, afterwards so natural to it, in the earlier stages of its existence. So long as its outer-covering is soft and membranous, the growth proceeds in the same way as that of the other sessile-eyed races.

My more detailed description will be given at the end of this Paper; but I regret that the specimens, notwithstanding all my care, did not live long enough to allow me to decide whether it be true, as I suppose, that the covering of the lobster, in no long time, becomes too firm to permit of such a further circulation of the blood as shall enable it to enlarge by extension of surface; and that, when the process of exuviation is first accomplished, the pillars of the eyes are formed, and the other parts more definitely established in their permanent proportion. The proof of such of these remarks as apply to a class of the permanently sessile-eyed *Crustaceans* which have a lengthened body, will be found in the following observations:—

On the 6th of July I caught a specimen of the genus *Caprella*—*C. acuminifera*, or spectre *Caprella*, and finding it to be a female with spawn, I paid particular attention to its actions. There was under the body a pouch or enlargement, for about half its length, from the root of the two long organs forward. The ova were clearly visible as they were enclosed in this covering; and they were by no means small in proportion to the size of the animal, which does not often exceed three-fourths of an inch in length. A continued motion was visible in this receptacle, which was regular and constant in dilation and contraction; and, as this motion continued after the exclusion of the young, I have no doubt that it proceeded from the action of the organs of respiration, which function may be the more powerful in this genus or species, in comparison with such *Crustaceans* as shed their ova unhatched, on account of the necessity for greater energy in executing the higher process of supplying the young with a constant current of fresh water. One of the greatest difficulties we find, in bringing the new born young of the common *Crustaceans* to perfection in captivity, is the attention required to constantly supply fresh water.

Two days after this creature had been in my possession the young ones were excluded; and I was careful to notice that at this instant they were perfectly of the form of the parent. Their substance was somewhat transparent, but their size was such

that they would not have measured less than a sixth part of the length of the mother; so that a young *Caprella*, which never grows to the length of an inch, nor beyond the thickness of the larger sewing cotton, is longer at its birth than the young of the common edible crab, which reaches the weight of several pounds.

Whilst engaged in watching the action of exclusion, I perceived an ovum suspended from the opening of the pouch by a fibre, and at the extremity the animal appeared curled up in a transparent covering. It is clear, therefore, that it remains enclosed and attached until it finally drops off, at which time the envelope and covering of the ovum give way together to allow of its escape. One individual was extricated by the hinder parts first struggling into liberty; and another had the posterior bifurcated organs so entangled within the ovum, that it was only by violent efforts that it at last escaped from prison. In the more transparent, or at least the better situated, ova, after the young had left them I discerned a shrivelled opaque covering, like a shell or investing membrane of the embryo, that had been thrown aside previous to the birth. The parent animal lent no assistance to the extrication of the young; nor did it appear to take any notice of them after their enlargement.

I had made these remarks, and was congratulating myself on what I supposed to be an interesting discovery, but some time after I chanced to find, in the 8th volume of Loudon's Magazine of Natural History, the following quotation from a Paper by Colonel Montagu, from the 7th volume of the Transactions of the Linnean Society:—"While examining a female in a watch-glass of sea water under a microscope, we were agreeably surprised to observe not less than ten young ones crawl from the abdominal pouch of the parent: all perfectly formed, and moving with considerable agility over the body of the mother; holding fast by their hind claws and erecting their head and arms." It is not improbable that this observation of so accurate an observer, on one species of *Crustaceans*, although of a family widely different from all the stalk-eyed genera, may have had the effect of rendering more firm the persuasion of the opposers of Mr. Thomson's views, when they contended that the young of all the families of *Crustaceans*

were developed from the first in a perfect form, and that the creatures he believed to be the early condition of the crab he examined were animals of a separate class, of the genus *Zoëa*. But whilst Montagu must thus be regarded as the first observer of a fact which, since his day, has acquired additional interest, from the near affinity of the class in which it has been observed to those in which the process differs remarkably, it becomes no less certain from other researches that, as I have already said, the existence of a peduncle to the eyes forms the natural mark of distinction between the families which undergo a metamorphosis in their early condition, and those which do not.

The other observations which I have to advance in proof of the second proposition, concerning the progress of developement in the lobster after its escape from the ovum, were made in the month of June. At this time, a fisherman observed in a lobster which he had caught, that among the spawn, which were large, as if ready to be shed, there was an appearance of motion; in consequence of this he removed a portion of the mass and brought it to me. Some individuals were, in fact, free from their envelopes, and moving about slowly, as if nestling among others that remained attached to the parent. Proceeding to a closer examination, I found it necessary to separate them into four divisions, as they were enclosed in the egg, or extricated from it. The first was one that had not yet escaped from the shell, and which bore the appearance, as usually represented, of that early stage of its existence; but I was only careful to remark in this instance, that the carapace, or crust, covered no more than a small portion of the body. I could not discern any antennæ; the chelæ or hands, and smaller legs, were furnished with their pincers; and the usual flat plates of the tail were round at their termination, although being narrow, when they were spread abroad, the tail might appear as if forked: the spine in front was bent downward, and the eyes were sessile. But a considerable change had taken place in such as were free from the ovum, and had nestled among the masses of eggs. Their length had increased to what I supposed one-third part of an inch: the eye large and sessile, the spine or

rostrum still bent down: carapace wide in front, and flat across the eyes: feelers at the mouth, and branchiæ fully formed, as were the hands and caudal plates; but the lengthened or ringed portion of the body longer in proportion than in a more advanced growth: no antennæ discernible, but the carapace extended over rather less than one-half of the body; it was thin, flexible, and ended with a free edge. In another specimen a portion of carapace had been added, and thus it covered half the body, by an evident extension of the growth of a very thin membranous substance, which left the anterior portion, where it was united to it, with a free edge. In a third specimen I found the whole body covered with the crust or carapace, which was extended back to cover the beginning of the lengthened portion, as in adult growth, and which was divided into three sections, each one an extension of the other, and each possessing a free edge at the place of union: the first of these edges was close behind the eye, and the second at the middle of its length; the hindmost was thinnest and most membranous, and the anterior more considerably thickened and firm; I think, also, that it was in some degree contracted in length: the snout or rostrum still remained bent down, and the body more round, and stouter in proportion, than in aftergrowth.

There is not the slightest appearance as if any of these creatures had thrown off a skin or shell in any of these stages; but their progress of growth must have been quick from the time of their escape from the egg. The colour of the whole body was a bright red, which was chiefly formed of star-shaped marks.

Wild Flowers and Ferns of the Isles of Scilly, observed in June and July,

By MISSES L. and M. MILLETT.

MEMBERS OF THE SOCIETY.

ON visiting Scilly, we determined to observe the wild plants for the purpose of comparing them with those growing about Penzance; but we soon found that admiring the beautiful scenery, and examining the rocks, caverns, and antiquities, with which we were surrounded, occupied a large portion of the time we had allotted for a botanical search, and after staying five weeks at St. Mary's, and making excursions of a day to the other Islands, we reluctantly left Scilly, under the impression that our list was an imperfect one, and that many good plants were still to be found there. With the assistance of our little nephews, however, we made the following list, which contains the names of one hundred and forty-six flowering plants and sixteen ferns. Although the species vary little from those about Penzance, the difference of situation is great, and contributed much to the interest of observing them. The beautiful *Anagallis tenella* (bog pimpernel) is confined here to patches in marshy ground, whilst at Scilly it delights to escape into the fields, and even to cover dry sandy hillocks, so as to form a carpet, with its petals of delicate pink. *Crithmum maritimum* (samphire) may be gathered in places comparatively remote from the sea; indeed the plants of Scilly set all the directions in botanical books at defiance, and Withering and Loudon might have remained at home for any service they rendered us at Scilly.

Collecting the lichens and ferns devolved on our elder nephew, who proved Scilly to be far richer in herbaceous lichens than the neighbourhood of Penzance, and in these also the difference of situation was strikingly apparent. The beautiful and rare *Sticta crocata*, found by him on a few *rocks* in Zennor, he discovered in large patches on the *ground*, at Tresco, Bryer, and the Gugh. *Sticta pulmonaria*, which usually grows on *trees*, and in this neighbourhood but sparingly, at Scilly is common on the *ground* in several Islands, and at Inaziggan point, St. Mary's, covered a *rock* many feet in height.

The Rev. J. W. North, in his work entitled "A week in the Isles of Scilly," publishes a list containing fifteen species of ferns, found by E. W. Cooke, Esq.; two of these, *Aspidium lobatum* and *Asplenium Ruta-muraria*, our nephew did not find, but he has the pleasure of adding three species,—*Blechnum boreale* (common hard-fern), which he found in a pit on Salakee down, near the Giant's Castle, *Botrychium Lunaria* (moon wort), and *Ophioglossum vulgatum* (adder's tongue); both the latter are believed to be new, not only to Scilly, but to the Land's-end district: he purposes, on a future occasion, to add them to a collection of dried ferns of the neighbourhood, and present them, with a few of the lichens of Scilly, to the museum.

FLOWERING PLANTS.

Ligustrum vulgare
Veronica Chamædrys
Lycopus Europæus
Salvia verbenaca
Iris pseudacorus
Eriophorum angustifolium
Triticum loliaceum
Scabiosa arvensis
Sherardia arvensis
Galium Mollugo
——— *verum*
——— *Aparine*
Rubia peregrina
Plantago lanceolata
Parietaria officinalis
Lycopsis arvensis
Anagallis arvensis
——— *tenella*
Convolvulus sepium
——— *arvensis*
——— *Soldanella*
Campanula hederacea
Jasione montana
Viola canina
——— *tricolor*
Verbascum Thapsus
Hyoscyamus niger
Solanum dulcamara
Erythræa centaurium
——— *littoralis*

Samolus Valerandi
Lonicera Periclymenum
Hedera Helix
Glaux maritima
Beta maritima
Eryngium maritimum
Hydrocotyle vulgaris
Daucus Carota
Conium maculatum
Crithmum maritimum
Smyrnium Olusatrum
Fœniculum officinale
Heracleum Sphondylium
Sambucus nigra
Tamarix Gallica
Statice Armeria
Linum angustifolium
Scilla verna
——— *autumnalis*
Hyacinthus nonscriptus
Peplis portula
Rumex Acetosa
Calluna vulgaris
Erica cinerea
Polygonum aviculare
——— *convolvulus*
——— *Persicaria*
Butomus umbellatus
Silene Anglica
——— *inflata*
Stellaria Holostea
Cotyledon umbilicus
Sedum Anglicum
Oxalis Acetosella
Lychnis sylvestris
Spergula arvensis
Lythrum Salicaria
Reseda Luteola
——— *fruticulosa*
Prunus spinosa
Mespilus Oxyacantha
Rubus fruticosus
Potentilla anserina
Tormentilla officinalis
Glaucium luteum
Papaver Rhœas
Ranunculus hederaceus
Verbena officinalis
Glechoma hederacea
Stachys sylvatica
——— *palustris*
Ballota nigra
Marrubium vulgare
Thymus Serpyllum
Prunella vulgaris
Euphrasia officinalis
Pedicularis palustris
Antirrhinum Orontium
Scrophularia Scorodonia
Digitalis purpurea
Sibthorpia Europea
Orobanche minor
Thlaspi Bursa pastoris
Cochlearia Danica
Senebiera Coronopus
Cardamine pratensis
Nasturtium officinale
Sisymbrium officinale
Matthiola sinuata
Sinapis arvensis
Erodium moschatum
——— *maritimum*
Geranium molle
——— *Robertianum*
Malva sylvestris
Fumaria officinalis
——— *capreolata*
Polygala vulgaris
Genista scoparia
Ulex Europæus
Anthyllus vulneraria
Vicia cracca
Ervum hirsutum
Ornithopus perpusillus
Trifolium officinale
——— *arvense*
Lotus corniculatus
Hypericum elodes
Sonchus oleraceus
Leontodon Taraxicum
Hieracium Pilosella
Hypochœris radicata
Lapsana communis
Arctium Lappa

Carlina vulgaris
Tanacetum vulgare
Artemisia Absinthium
——— *vulgaris*
Gnaphalium Germanicum
Senecio vulgaris
——— *Jacobæa*
Inula Helenium
——— *dysenterica*
Bellis perennis
Chrysanthemum Leucanthemum
Pyrethrum Parthenium
——— *inodorum*
Anthemis nobilis
Centaurea nigra
Euphorbia Portlandica
Urtica dioica
Arum maculatum
Humulus Lupulus
Acanthus mollis

FERNS.

Polypodium vulgare
Lastrea Filix-mas
——— *spinulosa*
——— *dilatata*
——— *Fœnisecii*
Polystichum angularie
Athyrium Filix-fœmina
Asplenium marinum
——— *Adiantum-nigrum*
——— *lanceolatum*
Scolopendrium vulgare
Blechnum boreale
Pteris aquilina
Osmunda regalis
Botrychium Lunaria
Ophioglossum vulgatum

Penzance,
Oct. 21st, 1853.

On the Nest of the Fifteen-spined Stickleback.

By RICHARD Q. COUCH, Esq., M.R.C.S.

ONE OF THE SECRETARIES.

IT is now several years since, that the singularly interesting fact that some of our fish build nests and rear their young as tenderly as birds was first discovered. A fact so new, and so opposed to our general views, was not very hastily allowed. It was very carefully examined; and then the eggs were developed into the young, and these were finally reared into the adult and perfect fish. The species was thus ascertained, and it excited some degree of interest at the time; especially as that Prince of ancient naturalists, Aristotle, had also recorded the same fact; but as his observations had never been confirmed, the notice of his having ever said so was held to be one of the curiosities of the science. Now, however, the fact is fully acknowledged, and it is also admitted that the old fish is as anxious for the welfare of its young as a bird. It has been doubted however, lately, whether the species to which I have given the honour be the right one. This doubt rests on mere supposition, it is supported only on partial observation, a circumstance which does not allow of general deductions. The only objection to the accuracy of my conclusion is that the form and general appearance of the young are altogether unlike

the adult of the stickleback. This I at once allow, but I do not the conclusion based on it,—that, therefore, the young and old belong to different species. I was well aware of this dissimilarity, at the time of my first observations, and, in consequence of it, examined the matter very carefully several times, and finally traced the young through its young stage, till it eventually appeared in its true and perfect form.

In describing the nest, I made no reference to the different stages of the growth of the young; but stated as a result the species to which they belonged. My reasons for this omission were, that during the experiments I observed phenomena which had never been previously noticed, and these I determined to examine in many different genera; and that, till they were fully examined, an explanation could not be offered which might be considered satisfactory. Of the result I was certain, and this alone was published. The dissimilarities between the old and the young are the grounds for the difference of opinion, and this I will now examine. The difference in character between the young and old of the same species of animal is a constantly occurring phenomenon of Nature: it is, in fact, only among the higher orders that identity of form and character is at all found. The young of the horse, the elephant, or the dog, are so like their parents, that they can never be mistaken; while the dissimilarity among birds is chiefly confined to the plumage, and that is nearly as great between the summer and winter dress as between the young and the old. Going lower in the scale, a different order is observed; differences of a strong character occur, not only between the young and old, but even between the male and female of the same species. This is so great, in many cases, that nothing but accurate observation of many observers would entitle it to belief. Every one knows that the caterpillar is the young of the butterfly or moth, and that it undergoes a series of metamorphoses, whereby the unsightly grub assumes the gay colours of the fly. In the class *Reptilia*, it is, perhaps, even more apparent, because they are capable of being more easily and clearly pointed out. The frog, beginning life as a mere fish, is fish in every particular. It

breathes by gills and this form of respiration implies a corresponding formation of the heart and peculiarity of circulation. The heart has a single cavity, like that of all fish. But, as age advances, changes, or rather revolutions, occur of the most beautiful and wonderful character. The gills, from being external, gradually disappear, and the internal ones are developed: these, in their turn, decrease in size and function, become obliterated and give place to the true lungs. With these changes the heart gradually alters from its single and simple conformation to the compound, and takes on the pulmonic and systematic character Every part undergoes these changes, even the brain and nervous system. In the tadpole, where everything is fish-like, the brain and spinal systems are quite fish in the linear arrangement of their lobes. The change from the tadpole to the perfect frog, though gradual, is yet well marked. This transition process, though much less marked in fish than in those creatures now mentioned, yet are, very distinctly seen. The changes do not embrace so large a scope in the scale of being, because it is not a passage from one class to another, but from one species to another in the same division where forms are alike.

I have now had an opportunity of examining the young of many species of fish, and I think there can be no doubt but that, in several, very considerable alterations occur in the passage from the young to the adult state. If we take the growth of any common fish, such as the fresh water species,—the trout for instance, how different are the two states of youth and age. If examined carefully, when about sixty days old, it will be seen that the form is long and slender,—the head short, blunt, and deep,—the eyes large,—and the mouth quite under the head, and not, as in the old fish, in front and terminal. The trout, in its adult state, has two dorsal fins, widely separated from each other, and from the tail, and the two inferior fins are equally distinct and distant. In the young condition this is not the case; the whole of the dorsal, caudal, and abdominal fins are continuous with each other, as in the conger. In the whole of the *Salmonidæ*, then, there is not the most remote resemblance between the two extremes of age. In the embryo

state they are long, slender, and inactive, with continuous fins; in the adult they are light and elegantly formed, with small and widely separated fins, and a sharp and pointed head. These differences are precisely those observed in the developement of the fifteen-spined stickleback. In the condition in which they may be first seen, the head is short, blunt, and deep,—the mouth large and transverse, and not terminal; the eyes are large on the anterior part of the head, and the body is long, slender, and not tapering; the fins are continuous from the back to the tail, and so round to the abdomen. In all these particulars it differs very widely from the fully developed state. But I have traced them through every stage, and watched all these alterations, and therefore, unless there are other grounds for difference of opinion than those already stated, there cannot be much weight attached to them. In the young of the salmon, as in the cod, whiting, haddock, and others, the whole of the dorsal fins are continuous with the tail, and so also are the abdominal fins; in this they resemble the conger. As they advance in age a notch is observed above and below the tail, which increases, and the tail, as in the ling, becomes separated from the others. Then the dorsal and abdominal fins get irregular in their outline: this increases, and the whole becomes broken up into the patches which subsequently form the adult and specific number of fins. In this way I have witnessed the young taken from the nest rise through each stage to the perfect animal.

This nest is built of sea-weeds, as they grow from the rock, which the fish binds together by a silken thread. The nest is, in reality, stitched together, and in the midst are deposited the amber-coloured eggs. The old fish, as parents, are exceedingly attentive to their charge, one or other never leaving it for more than a foot, returning again and again to see that everything is properly secured. On several occasions I tore the nest asunder so as to expose the ova, when the old fish made a desperate onslaught on my hand, and so fearless was it, that I several times took it up out of the water; but no sooner was it at liberty than it instantly began to repair the mischief,—sometimes tugging laterally with

its mouth so as to bring the sides together, and at others pushing its muzzle up as far as the eyes into the mass, then jerking backwards, so as to pull the central part to cover the surface. The parental attachment is very strong, even after the young have left the egg. They try to keep them altogether by enticing them to some overhanging sea-weed, and if one, more venturous than the others, goes beyond its bounds, it is instantly pursued by the parent, and taken in the mouth, brought back, and replaced in the home from which it had escaped. The whole history of these nest-making fish is exceedingly interesting, and will well repay the study of the naturalist.

Illustrations of Castle Chûn.

By S. R. PATTISON, Esq., F.G.S., of Launceston.

CONSIDERABLE light is being thrown on the most ancient British structures by the "diggings" now in course of prosecution at the camp on Worle hill, above Weston-super-Mare. Full descriptions of these interesting excavations will be found in several Papers communicated by the Rev. F. Warre to the Somersetshire Archæological Association. On a hasty visit to the scene of action a short time since, I was struck with the similarity of the hut-circles, within the Weston camp, to many which appear on Dartmoor, and on the Cornish moors. Some of the latter are inclosed within intrenchments, and others scattered on the open hill-side. As the delvings at Weston have produced a rich harvest of primeval relics, I beg to recommend similar operations in the field of Cornu-British antiquities.

The camp at Weston incloses about fifteen acres, the summit of a rugged promontory jutting into the Bristol channel. Its strong defences are skilfully adapted to the nature of the ground, and the lines of best natural defence are precisely those of the smallest artificial works.

Within the area, and disposed with rather more of parallelism than the plan indicates, are very numerous circular spots, apparently covered with loose stones. On removing the latter there is exposed a circular pit, about six or seven feet deep, carefully lined for about half or two-thirds of its height with dry masonry. At the bottom of several of the pits was found a small store of blackened grain, some of which I gathered and forward with this Paper. I will not attempt at present to describe all the contents, or to draw conclusions from them, as you will find both admirably done in the publication already mentioned.

The catalogue comprises an iron ring, stone used for pounding grain (some of which I saw at the bottom of one excavation), bones of pigs, small sling pebbles selected from the neighbouring shore, bronze arrow-head, two good socketed spear-heads, part of an iron bit, a great number of Roman and Romano-British coins (Constantine, Carausius, &c.), glass beads—red, bluish-gray, white, and black.* With these are skeletons, one, two, and in one case three, in an excavation; shewing by severed skulls and crushed limbs the sad conflict and its fatal issue. With these the debris of wattle or wicker occur, and though the remains are probably of more than one period, yet the careful investigation to which they are now submitted will doubtless restore to us some faithful pictures of the precarious life and violent death of our "rude forefathers."

My simple object in this Paper is to call your attention to the illustration thus afforded to Castle Chûn, as well as to the closely similar structure of Grimspound (Rowe's Dartmoor, p. 44), and other fortified collections of huts or storehouses.

The circles of Castle Chûn are all abutting against the inner rampart; at Weston they are all detached; at the former they are twenty feet across,† at the latter only seven or eight; the masonry of the former is raised above the surface, but not so in the latter. The whole work of the Cornish castle is smaller and more regular, more like a fortified magazine or depôt; the other is a large fortified village or town.

I write this, not professing it to be an account of either, or of the analogies of both, but in the hope of stimulating some other person to the interesting pursuit of that branch of archæology which makes us acquainted with the homes and habits of our remote ancestors, and in doing so calls forth our earnest gratitude for the marvellous subjective change we, their descendents, owe to Christianity.‡

* Some of these articles have been obtained since the printed accounts were published.

† W. Cotton, Archæologia, vol. xxii., p. 302.

‡ This Paper has reference to the ancient Village near Chûn, discovered by the Misses Millett, an account of which is published in our Reports.

Rubbings from Sepulchral Monuments.

By N. HARE, Jun., Esq.

THE two rubbings submitted to the society this year are from the parish church of Lanteglos, by Fowey. No. 11 is from the ancient brass of Thomas de Mohun, of Hall, in Lanteglos, who married Elizabeth, the daughter, and co-heiress, of Richard Hayre, and died in 1400. Sir Reginald de Mohun, his grandfather, and the ancestor of the Cornish Mohuns, was of the ancient baronial family of the same name in Somersetshire. By his marriage with Elizabeth, daughter, and heiress, of John Fitz-William, he became possessed of the large property which had belonged to his wife's family. There were four plates of arms around the effigy of Thomas, three of which, charged with the arms of Mohun, Fitz-William, and Hayre, still remain. The missing plate probably contained the arms of Joan St. Aubyn, the mother of Thomas. This Thomas was the great-grandfather of John Mohun, represented in rubbing No. 12. The latter married Anne, daughter of Richard Code, whose effigy is likewise given, as are also the effigies of their nine children. It appears from the inscription that John and his wife died in 1508, within twenty-four hours of each other, of the sweating sickness.

The title given to John Mohun of Armiger, or Armour-bearer, is the same in degree as Esquire, and ranks next below a Knight. It is stated in Jacobs's Law Dictionary to be a title of dignity, belonging to such gentlemen as bear arms either by *courtesy*, as younger sons of noblemen, and their eldest sons; eldest sons of knights, and their eldest sons, &c.; or by *creation*, such as the

King's servants, who when created were invested with a collar of S.S., and a pair of silver spurs. Their duty was to attend on knights in the time of war, and carry their shield.

The contemplation of the pictures of these grim warriors forcibly recalls the troubled times in which they lived. One flourished amid the victories achieved by the English armies on the battle-fields of Neville Cross, of Cressy, and of Poictiers, when the captured Kings of Scotland and France graced the triumphs of the Third Edward and the Black Prince. He also witnessed the troubles that afterwards arose, and which terminated in the dethronement and death of the unfortunate Richard the Second. The birth of the other was coeval with the great discovery of Printing, the source of so many blessings to mankind. Then came the murder of Edward the Fifth and his brother in the Tower, the death of the murderer at the battle of Bosworth, and the termination of the wars of the Roses (which had devastated the country from the time of Thomas de Mohun) by the union of the rival houses of York and Lancaster, in the persons of Henry the Seventh and his Queen. Subsequently were the rebellions of Thomas Flammock, of Bodmin, and Perkin Warbeck, in which the Cornish took part; and, ten years before his death, the discovery of the Western World, by Columbus, burst upon the nations of Europe, and opened to them new fields of enterprize.

Millbrook Borough Seal.

Hals says that Millbrook formerly sent Members to Parliament, but lost that privilege, in the reign of Henry the Eighth, because it could not afford to pay its Burgesses their wages of 4*s.* a day during their attendance in Parliament.

Account of some Remains found in Pentuan Stream-work, and of the circumstances under which they were found.

By Mr. H. M. STOCKER, of St. Austell.

WITH this I have sent you a Spear or Arrow head, found in one of the most ancient stream tin works in this county,—that of Pentuan, in order that it, with its history, may be kept as one of the numerous and interesting evidences which have been collected by your society as records of past ages.

This stream-work, though very aged, is still worked by a Company who have given it the name of Wheal Virgin. It is about two miles to the south of St. Austell, and one mile and a half from Pentuan Harbour, and has the excavated appearance presented by stream-works in general. A great amount of overburden has to be removed to obtain the ore, which has been raised in a sufficient quantity here to repay fully the outlay of the present adventurers.

Besides the arrow-head and a small chisel, numberless blocks of oak trunks, and branches of trees, blackened throughout, have been continually raised, out of which snuff boxes, and other mementos, have been made to gratify the taste of travellers visiting this spot.

The tin streamers, while following the shelf of the valley, found, about ten feet below the present surface, the commencement of a

shaft which was sunk on the tin shelf, and extended to a depth of from fifteen to twenty-five feet below the present surface-level. this was filled with sand, of which the before-mentioned ten feet stratum was composed. The square frame-work of the shaft was composed of oak, blackened throughout by age, and having the ends regularly morticed, though the tenets were very small compared to those now made. The interstices of this frame-work were formed of oak twigs similarly blackened, and regularly interlaced.

At the bottom of this shaft, lying directly on the tin-ground, was found the arrow-head I have sent you, with a small chisel about eight inches long, and of the same material as that of which the arrow-head was made, which seems to be an extremely hard alloy.

It may be of interest here to call the attention of those engaged in mining to the accuracy of judgment displayed by our ancient tinners, in their having thus sunk directly on the bed of tin. By what mode of reasoning they discovered it I must leave to better observers than myself to determine.

The chisel, about an inch in width, is still I believe in the hands of some one of the adventurers or the captain.

The only other recent discovery which bears any relation to the records of curiosities in mining found in this neighbourhood are those at the well known work generally called Carclaze mine, which is at present worked as a clay sett. Here, while the present adventurers were having a canal opened, in order to form a railway communication from the bottom of the pit, at a depth of twenty-two fathoms from the surface, they discovered several flat-bottomed boats, concerning which a tradition had long existed in the neighbourhood, as stated in Drew's History of Cornwall published about thirty years since. These boats, sixteen to eighteen in number, were found in the middle of the canal, chained together, and in an admirable state of preservation; they are six feet in length, four feet six inches broad, and one foot deep: their bottoms, which are made of oak, are flat, and the timber is firm, or at least that portion of it is which is imbedded in clay: the part which is exposed to the

air is almost rotten, as may be supposed when we recollect that they have not been seen for at least one hundred and twenty years. The tin-stuff at this time was not stamped in the pit, but was thrown down shafts into these boats, which, floating in a canal, rendered it an easy matter for the workmen to transport it to the stamps situated near the bottom of the adjacent hill. After that period, this mine was frequently the resort of smugglers, and about fifty years since large quantities of their goods have lain in safety in some one or other of the excavations along the canal. The boats may still be seen near the spot: one or two of them have however been removed to the surface and broken up.

October 18th, 1852.

List of Fungi *of the neighbourhood of Penzance.*

By Master R. TRACEY MILLETT.

THE following is a list of *Fungi* found in this neighbourhood, and consists of upwards of two hundred species, several of which are new, or have never before been described as British. It is by no means supposed to be complete; on the contrary, the fleshy *Fungi* and Moulds are not included in this list, and many places have yet to be examined.

All botanists agree in considering there is greater difficulty in determining the species of *Fungi* from description than any other branch of the *Cryptogamia;* and it was on this account that Mr. Ralfs proposed my making a collection of the *Fungi* of this district for the society's museum. I have this day the pleasure of presenting one hundred and fifty specimens, collected during the past year with the assistance, and under the immediate superintendence, of Mr. Ralfs. The whole of the specimens are believed to be authentically named, they having been examined by the Rev. B. J. Berkeley and Mr. Broome, gentlemen well known for their thorough knowledge of this greatly varied and very interesting branch of the *Cryptogamia*.

Agaricus stypticus
——— *atrocæruleus*
——— *mollis*
——— *cyphellaformis*
Merulius corium
——— *lachrymans*
Dædalea betulina
Polyporus adustus
Polyporus squamosus
——— *hispidus*
——— *versicolor*
——— *abietinus*
——— *ulmarius*
Polyporus fraxineus
——— *Scoticus*
——— *ignarius*

Uredo Scillarum
——— *alliorum*
——— *utriculosum*
——— *Primulæ*
——— *compransor*
——— *Violarum*
——— *Senecionis*
——— *Umbellatarum*
——— *Rosæ*
——— *effusa*
——— *Ruborum*

Uredo apiculosa
——— *candida*
——— *Poterii*
——— *Euphorbiæ*
——— *cylindrica*
——— *Tussilaginis*
——— *Ficariæ*
——— *Bunii*
——— *Betæ*
——— *pompholygodes*
——— *Valerianæ*

On some of the rarer forms of Cornish Crustacea.

By R. Q. COUCH, Esq., M.R.C.S.

ONE OF THE SECRETARIES.

The *Crustacea* included in the present communication are rare, only because they are rarely sought after. From their minute size, and the peculiarity of their habits, they generally escape notice. To the inquisitive naturalist, however, they frequently occur. They are remarkably grotesque in their figures, and very peculiar in their movements. They generally live among the smaller sea-weed of our shores, or the corallines from deep water, and are so slender in their forms that they would constantly escape detection, but for their singular mode of progression. They belong to the

Class Crustacea.

Sub-class *C. mandibulata.*

Of the sub-class *C. mandibulata* they are included in the division *Edriophthalalma* of Leech; and the order *Læmodipoda* of Cuvier. There are three orders included in this division of Leech: 1, *Amphipoda,* or leaping shrimps; 2, *Isopoda,* or the group of woodlice; and 3, the *Læmodipoda,* or those included in the present list.

Or. ch.—Body long and slender, composed of seven joints, the post occipital solidified with the head; antennæ four, setaceous, the last joint multi-articulate; mandibles without palpi; branchial lamellæ attached beneath the middle joints.

Habitat.—The sea.

This order embraces two genera, *Caprélla* and *Pròto.* In the *Caprellæ* the branchial appendages are two pairs, attached to the central segments, which are destitute of feet. In *Proto* the

branchial appendages are in three pairs, attached to the second, third, and fourth annulations, which are monodactyle.

CAPRELLA, *Lam.*

Gen. ch.—Linear-elongate; body composed of seven annulations, which are unequal, two posterior smallest; antennæ two pairs; frontal five-jointed, the upper pair the longest; eyes small, posterior to the antennæ; palpi four-jointed; claws in five pairs, the two anterior mandibulate, the posterior pair terminal.

Caprella phasma.

Sp. ch.—Linear-elongate; front rounded, with an occipital spine, the second joint with two dorsal spines; hands of the second annulation ovoid, one toothed and pointed in front.

Lam., Anims. Vert., Vol. v., p. 174; *Cancer phasma*, Montagu, Lin. Trans., Vol. vii., p. 66, Pl. 6, fig. 3; Johnston, Mag. Nat. Hist., Vol. viii., p. 669.

Habitat.—Among *Confervæ*, Lariggan rocks, Mount's-bay.

This species is long and slender, and composed of seven annulations. On the first, or head, there is a spine, on the second, two, and on the third, one, all on the dorsum, and pointing forward. The antennæ are two pairs; the superior or upper pair are the longest, the second about half as long, terminations multi-articulate and hairy. The palpi are in two pairs, the anterior the shorter of the two. On the second annulation are the largest claws; the second joint is long and club-shaped,—third small,—the fourth large, flat, ovoid, pointed at the distal end, to which is attached a moveable claw, meeting a pointed spine below. The third and fourth annulations have each a pair of flat appendages. The three posterior segments have each a long pair of claws, the last are terminate and longest. It varies in length to about three-quarters of an inch, and varies much in colour, from a pale yellow to a red, and green.

C. Acanthifera.

Sp. ch.—Long and slender; first annulation with a dorsal spine,

the second with two smaller ones. Hands of the second annulation ovate, serrated on the inner margin.

C. Acanthifera, Johnston, Mag. Nat. History, Vol. vi., p. 40, fig. 7*a*;—Vol. viii., fig. 70, p. 671.

Habitat.—Mount's-bay, in Gwavas lake and off St. Michael's Mount, among *Confervæ*

This species is about half an inch in length; the head rounded in front, with a spine on its anterior dorsal surface, and two smaller ones posteriorly on the next segments. Eyes of a bright red colour. Superior antennæ as long as the body; basal joint short, second and third of nearly equal length, being to the breadth as five to one, fourth joint shorter, the terminal multi-articulate and bristled: inferior antennæ much shorter than the others. The first pair of hands below the eyes, small, the second larger and attached to the second annulation, the terminal claw long and slender, the hand on the inner margin more or less serrated, wrist-joint short, others much longer. The colour varies very much, being sometimes translucent, at others of a reddish-brown tint, or spotted.

C. Pennantii.

Sp. ch.—Back without spines; anterior part of the head produced into a spine. Hands of the second pair of feet with one tooth.

Cancer Atomos, Stew. Elem., Vol. ii., p. 317; *Astacus Atomos*, Pennant, Brit. Zool., Vol. iv., Pl. 13, fig. 2.

Habitat.—Not uncommon among corallines, in Mount's-bay.

About three-quarters of an inch in length, slender. Front of the head rounded and its upper part produced into a frontal spine, beside this there are none on any of the annulations. Superior antennæ the longest, as long as the body, much ciliated, second pair shorter. First pair of feet shorter and smaller than the second, the second pair larger, and with the inner margin of the hand toothed. Colour of a dull red.

C. Linearis

Sp. ch.—Head obtuse, but slightly larger than the first articulation. Antennæ not more than half as long as the body, inferior pair much ciliated.

Cancer linearis, Lin. Syst., 1056; *Cancer lobatus*, Stewart's Elem., Vol. ii., p. 317; *Caprella linearis*, Johnst., Mag. Nat. Hist., Vol. viii., p. 671, fig. 71.

Habitat.—On *Confervæ*, on Lariggan rocks.

This is the shortest and stoutest species of any found in our seas, and may at once be distinguished by having no spine along the whole of the dorsal surface: the two specimens obtained were of a light red colour, pellucid, and smooth. The head is oval, smaller behind than before; eyes red. Superior antennæ much shorter than the body, ciliated, especially the multi-articulate termination: the inferior antennæ about two-thirds as long as the upper, and much ciliated inferiorly. First pair of legs smaller than the second, the second large, and the terminal hand large, oval, and denticulated; fifth and sixth posterior annulations short, and from them arise two pair of small hairy claws, the terminal pair long, stout, and much haired. This species differs very considerably from all the others.

C. spinulata (Couch).

Sp. ch.—Long and slender; head deeper than the other annulations. Head without spine, but all the other annulations with one or more dorsal spines.

Habitat.—Pool, among *Confervæ*, Lariggan rocks, Mount's-bay.

Long and slender; the head is larger than the next articulation, and without a spine: the occipital articulation with a spine near its posterior margin, and there is one on the next ring above the branchiæ; there are two on the third, one above the branchiæ, one near its posterior margin, and one on the centre of each of the others. Superior antennæ as long as the body, basal joint small, the second about four times as long as wide, the third long and

slender and slightly enlarged towards its distal extremity, the last multi-articulate and ciliated; the inferior antennæ much smaller than the others. At the lower part of the head two pedi-palpi, small and bifid at their extremities. The hand very large, moveable joint long, slender, and hooked, and at its point, when bent, touches a spine on the hand.

Proto.

Gen. ch.—Linear-elongate; body composed of seven annulations, the terminal one short. Antennæ two pairs, the upper the longest; palpi four-jointed; legs in seven pairs, three jointed and monodactyle, two first with claws.

Proto pedatus.

Habitat.—Mousehole Island.

This species is linear-elongate, translucent, speckled, and smooth. The seven annulations are not cylindrical as in *Caprella,* but are larger about the middle. The superior antennæ two-thirds as long as the body, the last joint multi-articulate, ciliated; inferior antennæ short, slender, and tapering. The hands are in two pairs, attached to the first and second articulations, the first pair smallest, the second larger and stronger, oval, and prehensile; the wrists are small, the humerus long and slender: all the other articulations have a pair of long and slender claws,—the two last are very long and slender; the penultimate arises from the junction of the last two annulations, the last pair is terminal and tail-like; at the base of each is a pair of lamellated bodies, oval and pedunculated. There are several varieties belonging to this species which will, I have no doubt, subsequently prove to be distinct.

Notice of a Botanical Excursion in Cornwall, in a Letter to Mr. RALFS from J. WOODS, Esq.

Priory Crescent, Lewes.

My dear Ralfs,

Partly through laziness, and partly through the habit of not examining the plants I collect in a journey till they are all perfectly dry and ready for the Herbarium, I have neglected writing to you till your Letter gave a fillip to my good intentions. To begin at the beginning.—The *Physospermum Cornubiense* grows in the upper part of the Wood by Calstock Church, just below the road leading to Harewood. At Fowey I noticed *Fedia auricula* (a plant probably often overlooked as *F. dentata*), *Lotus hispidus*, and *Erythræa pulchella*. At Falmouth, *Fedia carinata*, probably escaped from some garden, as the Lamb's Lettuce is this species as often I believe as *F. olitoria*. In St. Agnes, of the Scilly Islands, I gathered as you know *Euphorbia peplis* and *E. portlandica*. The *Galium* we found at the Land's-end is clearly *G. Vaillantii*; it is true the knots are often hairy, but this is also the case with the specimens from Saffron Walden. The *Linaria* which I gathered by Looe, Helstone, having the leaves of *L. Elatine* and the flowers nearly of *L. spurium*, with a spur sometimes but not always curved, is the same as that which I have gathered in France, and believed to be *L. Prestrandriæ*, but I have never seen any authorized specimen, and am not certain of being right. The seeds are pitted but the pits are often confluent, and between these confluent pits and the winding interrupted furrows of *L. Elatine* the difference is very small. If not a species it is however worth notice as a variety.

The morning after you left me at St. Ives I walked as far as the Ferry towards Hayle, but instead of crossing to the Causeway I landed on the Towans, and on that day and the next had a good hunt over them without much success. I hunted also the Black cliff and the cliffs by Gwithian for the *Adiantum*, but in vain. It seems to grow on a tufo formed by the action of the water on the shelly sand, but I hardly found any such combination of shade and moisture as to promise well, I was however prevented by the tide from coasting the whole length of the rocks at Gwithian. After sleeping at Hayle I took the Rail to Angarrack and walked to Connor down, where I saw plenty of *Erica vagans* and of *Gnaphalium dioicum*, and some plants of *Gentiana campestris;* the latter I saw again on Denzell down, near St. Columb. From Connor down I proceeded to Farnham down, which is covered with *Ulex Europæus*, and yielded me nothing; but passing from Nanterro towards Gwithian, in a hedge on the right hand, I found one or two plants of *Agrimonia odorata.*—As I found this species again near the Start point, I suspect it to be not very uncommon in the West of England, but passed over, as *A. Eupatoria.* By Tregors moor, near St. Columb, I noticed *Sparganium natans* and *Mentha pulegium: Lastræa Fœnisecii* is very abundant in that neighbourhood. Near Tintagel I only got *Statice Dodastii* (not *occidentalis): Scilla autumnalis* is abundant in many places.—You know I suppose that *Allium Schenoprasum* (or *Sibirieum)* grows there below the Church. On leaving Trevena for Bude, my driver (the Master of the Inn at Trevena) told me of a woody plant, called by the country people *Beck*, which grows at the mouth of a little nameless stream between Trevena and Trevalga. He described it as an evergreen, growing about a foot high, with leaves having three points, and resembling, in appearance, a plant which he pointed out in the gardens, which is frequent in Cornwall, and is, I believe, the *Veronica decussata.* Indeed, he seemed inclined to believe it was the same species, though not growing so large, and having a differently-shaped leaf He said it had been brought into the gardens but had died. He had never seen either the wild or the garden plant in flower. The place pointed out is

a very wild one, where you can hardly move five yards in any direction without a climb or a scramble.

In returning I left the Great Western line and went to Dorchester and the Isle of Purbeck, but my botanizing was not more successful there than in Cornwall. I wanted the fruit of *Œnanthe rivularis*, but the flowering-stems had all disappeared,—*Phalaris paradoxa*, but the field was ploughed up,—*Trifolium resupinatum*, but I could see nothing of it, and the only plant of any scarcity was the *Erica ciliaris*, which I traced from Corfe Castle almost to Wareham.

Yours truly,

JOSEPH WOODS.

On the Calling of the Sea, as indicating a succeeding direction of the Wind.

By RICHARD EDMONDS, Jun., Esq.

I COMMUNICATED some observations on this subject to the Royal Cornwall Polytechnic Society in 1843, and as a few hours' warning of an approaching wind or state of the weather is of great importance to our fishermen and agriculturalists, I will now make a few additional remarks.

When the Sea "calls," or is heard inland to a considerable distance from the shore, during a calm, the next wind that springs up is, in nine cases out of ten, from about the direction of the calling. I state this principally on the testimony of several intelligent persons who have for many years, in different localities on the south, north, and west coasts, been observing these indications.

Some situations are much more favourable for hearing the calling than others, and no place perhaps is more *un*favourable than the shore from which the sound proceeds. A very favourable spot, on the west of Penzance, is in the public path through the field next above Mr. Fox's house, near the Minney, and about a quarter of a mile from the sea. If a person there in an evening hear the sea calling from the N.E. half of the compass and cannot hear any sound of the sea from the other half, he may confidently expect the next morning a wind from the former half. On the other hand, if he hear the calling from the S.W. half of the compass, and on going within sight of the north-eastern side of Penzance hear no other calling, he may calculate next morning on having a "down wind," that is, a wind from about S. or W., or

between those points. If, during a gentle breeze, the calling proceed from the same direction as the wind, the wind may be expected to remain longer in that quarter than if no such calling had been heard. During a strong wind there is no calling. An old proverb current here in a very rude dress, confirms these remarks:—

> "When Pons-an-dane calls to Lariggan River
> There will be fine weather:
> But when Lariggan calls to Pons-an-dane
> There will be rain."

The mouths of these streams are N.E. and S.W. from one another and a mile and a half apart, having the hill on which Penzance stands between them; Pons-an-dane being on the N.E.

On the northern coasts of Cornwall similar observations have been made; and the following is the reply to a letter which I wrote to a gardener of Redruth who had for many years been accustomed to keep a diary of the weather:—

"It is an invariable opinion, both here (Redruth) and at Portreath that when the sea is heard to roar above Portreath an easterly wind will follow, and when heard below or west of Portreath a west or south-west wind will follow. Of course when we hear the roaring, the wind is in a different direction from what will follow such an omen."

The calling must not be confounded with the sound arising from a ground swell, although the latter may likewise often come from the direction subsequently taken by the wind; for the calling is not dependent on the state of the sea, but entirely on that of the atmosphere. One of the principal fishermen at Cadgwith, near the Lizard, informed me that when a steam-boat passed round the Lizard point on a calm evening or morning, and he heard her paddles remarkably louder in one direction than in any other, he always found the next wind was from that direction.

Some suppose that the very fact of our hearing sounds in calm weather louder in one direction than another is a proof that the wind had already begun (although insensibly) to blow from thence. Whether on those occasions it has actually begun thus to blow in higher regions of the atmosphere I am not aware; but a gentle air is often at such times felt by the observer, contrary or at right

angles to the course of the sound. A few weeks since however, in the path before mentioned near the Minney, I heard the sea calling loudly from the E. or S.E. during a contrary wind, but the clouds were then passing in the same direction as the sound. The next morning it blew on the earth's surface from the quarter whence the calling had been heard, so that the wind which had prevailed in the higher regions had (as is usual) descended to the earth's surface.

On another occasion, whilst passing through the same field, I heard the waves breaking on the beach towards the east as loudly as if they had been only a few yards distant. I stopped a few minutes, and after the sound of each successive wave had passed I heard it echoed with almost equal loudness by the eastern side of Mr. Fox's house. I then went to the sea-side, but the noise there did not seem half as loud. At that time a column of smoke was rising from the neighbouring pottery. In the beginning of its ascent it inclined eastward, but after reaching a considerable elevation it flowed in nearly a contrary direction, thus showing that while the wind near the ground was from about W. it was in the higher regions nearly opposite, and the same as that from which the sound had proceeded. The following morning the wind on the surface of the earth had assumed the direction of the higher current and of the calling.

From the remarks now made, it is evident that the common saying of an unusual audibility of distant sounds being a prognostic of approaching rain must be received with considerable qualification; for if these sounds do not proceed from a rainy quarter they are the precursors, not of rain, but of fine weather.

Those who have opportunities of fully observing these phenomena might throw light on the subject by ascertaining, amongst other particulars, how soon after the first hearing of the call the wind begins to blow from the same direction: and whether, or not, at the spot where the sound originates the wind is blowing from the same direction as the calling—there being at the time no wind or a different wind on the spot occupied by the observer.

On an Ancient Millstone found in St. Just, near Penzance.

By RICHARD EDMONDS, Jun., Esq.

THIS upper stone of an ancient handmill is the only perfect one that I have seen. Observing it last summer on the wall of a cottage garden, near Tregeseal, a district particularly distinguished for its remote antiquities, I purchased it from the owner, who informed me that it had been found in a field close by the cottage, and within half a mile of the two "Druidical Temples" at the foot of Carn Kenidjack. It consists of very hard granite, weighs 34 lbs., and is 13 inches in diameter. Its upper surface is convex, the under, concave, the concavity being about an inch and a half in depth. It had probably revolved on an under stone similar to that described to this society in 1848 (p. 245). A funnel-shaped or tapering hole passes through the centre, four inches wide at the top, two at the bottom, and three inches deep. In the under-surface is a notch two inches deep, occupying three inches of the circumference, and extending two inches towards the centre, wherein, apparently, a handle, projecting horizontally, had been fixed.

In using this mill the grain must have been poured through the funnel-shaped hole into the hollow space between the two stones, and ground by the rotation of the upper stone; and as this hole is larger than required for such a purpose, it is probable that a spill from the lower stone passed up through it to retain it in its place whilst revolving; for the under stone to which I have alluded has a hole bored into it for receiving such a spill; and the hole in this upper stone is marked with circular horizontal lines as if it had revolved on a spill.

In the Oriental handmill, the upper stone was originally convex in its lower surface, and revolved on a concave stone. From it the

quern, anciently used in this county, is supposed to have been derived, although the latter, as employed in the Scilly Islands fifty years ago, and in Ireland to the present day, consisted of "two round flat stones." The Oriental handmill, like the upper millstone now before us, had but one handle; that handle, however, was fixed upright in the upper surface near the edge; and as the upright handle is much more convenient than the horizontal one, the latter was probably superseded by the former, so that the present millstone with its horizontal handle may have been used in St. Just prior to the introduction of the Oriental handmill, and long before the Roman Invasion.

P.S. Since writing the above I have seen another upper millstone, of the same size and shape, and with a similar notch in the same part of its circumference, but having also a furrow in the upper or convex surface, radiating from the centre as if intended for a clamp or handle, the furrow above and the notch beneath being about one-third of the horizontal diameter of the stone apart: had the furrow and the notch been diametrically opposite each other the stone would have been more easily fractured. The hole through the centre, however, was not only less funnel-shaped than the above, but it was also notched as if for fixing it securely to the spill. It was found near Godolphin House, about eight miles east of Penzance.

Penzance, 21st October, 1852.

Catalogue of Land and Fresh-water Shells found in St. Mary's, Scilly.

By Master R. TRACEY MILLETT.

(Names after Turton.)

Land Shells.

Helix aspersa	Very abundant about Hugh Town.
—— *nemoralis*	Tolerably abundant in the hedges of crofts.
—— *rufescens*	Very common in gardens.
—— *revelata*	Rare on a hedge near Porth Mellin.
—— *radiata*	Very common in gardens.
—— *granulata*	Rare near King Harry's Walls.
—— *pulchella*	Abundant on a hedge near Carn Thomas.
—— *aliaria*	Common in gardens.
—— *virgata*	Common on sandy hillocks near the sea.
—— *caperata*	
Bulimus fasciatus	
—— *lubricus*	Rare at Rocky hill & King Harry's Walls.
Bulea fragilis	Very rare on *trees*, but abundant under moss on *rocks*, at Blue Carn, and Bar point.
Pupa umbilicata	Very common in gardens.
—— *anglica*	Rare in Gardens.
Vitrina pellucida	Rare on a hedge near Carn Thomas

Fresh-water Shells.

Planorbis vortex	Abundant in pools in the marsh between Old Town and Porth Mellin.
Succinea amphibea	
Limneus pereger	
Pisidium pusillum	Rare in the last-named locality.

Although this list contains twenty shells I have every reason to believe it to be incomplete, since my search was confined to five

weeks in June and July, when the weather was dry, and other pursuits prevented my examining several localities likely to be productive of shells. Comparing the shells of St. Mary's with those found around Penzance, I have only to remark that in size they are about the same, with the exception of *Planorbis vortex*, which is somewhat larger. It is not in my power to exhibit this little collection, as, believing it to be the first of the kind made in Scilly, I presented it to the Lord Proprietor of the Islands.

Penzance,
October, 1852.

Translations from Domesday.

By JONATHAN COUCH, Esq., F.L.S.,

MEMBER OF THE SOCIETY.

Cornvalgie.

Here are recorded those who hold Lands in Cornvalia.

1. King William.
2. The Bishop of Exeter.
3. The Church of Tavestock.
4. The Churches of some Saints.
5. The Earl (Comes) of Moreton.
6. Judhail de Totenais.
7. Goscelmus.

Land of the King.

The King holds Winetone: there were in the time of King Edward fifteen hides: the arable land is sixty carucates: of this there is Domain one hide; and there are two ploughs, and villains holding three hides, and twenty-three ploughs: there are twenty-four villains, and forty-one suit and service tenants, and thirty-three borderers, and fourteen bond servants: there are six acres of meadow; the pasture four miles long and two miles broad; wood one mile long and half a mile broad: it returns 12 pounds (£) in full weight, and pure through the fire. Of these fifteen the Earl Moreton holds eleven hides: seventeen Thanes held these in the time of King Edward; and they cannot be separated from the Manor. Of this land the Earl himself holds in Domain one Manor, and it is called Renti: there is one virgate of land; two carucates of the land is worth 15 shillings. Uluuard holds of the

Earl one Manor (called) Renti: there is one hide. The arable land is twelve carucates: there Uluuard has one carucate, and eight suit and service tenants, and eight bond servants: the pasture is half a mile long and the same in breadth: it is worth 10 shillings.

Cheuret holds of the Earl Schewit: there is one virgate of land.

Blechu holds Trenant: there is half a hide.

Goduin holds Garverot: there is the third part of one virgate of Land.

Brixi holds Trenbras: there is the third part of one virgate of land.

Wihumar holds Tricoi: there is one hide.

Hamelin holds Cariahoil: there is half a hide.

Ricard holds Lusart: there is one hide.

Brictric holds Saint Mawan: there is one hide.

Andreas holds Boten: there is one virgate of land.

Turstin holds Heligan: there is one virgate of land and the third part of one virgate.

Brictric holds Bodeworwei: there is one virgate of land.

Turstin holds Trellewaret: there is one hide.

Turstin holds Tronthal: there is half a hide.

Aluuin holds Treurnivet: there is one acre of land.

Dodo holds Tretland: there are four acres of land.

Levenot holds Tretdeword: there is one hide.

Aluuard holds Trewode: there is one hide.

Grifin holds Roscarnon: there is one virgate of land.

Turstin holds Tragol: there are two acres of land.

Uluuard holds Trevider: there is one virgate of land.

In the whole there are sixty-eight carucates of land: formerly 20 pounds (£) and 10 shillings; now they are worth 6 pounds (£) and 14 shillings.

The King holds Henlistone: there are six hides and a half, of which two only paid tax in the time of King Edward: the arable land is forty carucates; of it there is in Domain one hide; and there are three ploughs, and twenty-three bond-servants, and thirty villains, and forty brewers, and twenty borderers, with seventeen ploughs: there are four acres of meadow: the pasture is five miles

long and three broad; the wood one mile long and half a mile broad: it returns 8 pounds (£) by weight and pure through the fire.

The King holds Bewintone: there are three hides; but one hide paid tax in the time of King Edward: the arable land is twenty carucates: of it there is in Domain half a hide; and there are two ploughs, and nine bond servants, and sixteen villains and forty borderers, with sixteen ploughs: there are two acres of meadow; the pasture three miles long and one mile broad; the wood half a mile long and three-quarters broad: it returns one hundred shillings by weight, and pure through the fire.

The King holds Lanehoc: there are five hides, but two hides only are taxed: the arable land is thirty-two carucates: of this there is in Domain one hide; and there are two ploughs, and eight bond servants, and fifty-nine villains and twenty-six borderers, with twenty ploughs: there is one acre of meadow, and forty acres of pasture; the wood one mile long and three-quarters of a mile broad: it returns 6 pounds (£), and if more or less this was to be made up:—purified by fire. From this Manor are taken away two Manors,—Podetot and Sanguinas: there is one hide and a half; the arable land is twelve carucates: Jouuinus holds of the Earl of Moreton: formerly it was valued at sixty shillings, now it is valued at forty shillings.

The King holds Chilchetone: in the time of King Edward it paid tax for seven hides: the arable land is forty carucates: of it there is in Domain one hide; there are nine ploughs, and twenty bond servants, and twenty-six villains and twenty-three borderers, with twenty-six ploughs: there are thirty acres of meadow; pasture five furlongs in length and four furlongs in breadth; wood one mile in length and one furlong in breadth: it returns 18 pounds (£) by weight.

The King holds Glustone: there are four hides, but it is taxed for two hides: the arable land is thirty carucates: of it there is in Domain one hide; and there are two ploughs, and twelve bond servants, and forty villains and twenty borderers, with seventeen ploughs: there is one acre of meadow; pasture three miles long

and one mile and a half broad; wood one mile long and half a mile broad: it returns 6 pounds (£) by weight. From this Manor is taken away one hide in Pendavid: the arable land is six carucates: the priest Boie holds (it) of the Earl of Moreton: formerly it was worth 20 shillings, now it is worth 10 shillings.

The King holds Paindran: there is one hide, but it is taxed for half a hide: the arable land is six carucates: of it there is in Domain one virgate of land; and there is one plough, and three bond servants, and thirteen borderers, with one plough: there are two hundred acres of pasture; wood one mile long and half a mile broad: it returns 3 pounds (£) by weight. From this Manor is taken away three Lands,—Pennadeluan, and Botconvan, and Botchatuno: there are two hides and a half: the arable land is ten carucates: the Canons of St. Stefan of Lancavetone hold of the Earl of Moreton: formerly it was worth forty shillings, now it is worth twenty shillings.

The King holds Carneton: there are five hides, but it pays tax for three hides: the arable land is thirty carucates: of it there is in Domain half a hide; and there are three ploughs, and twenty bond servants, and forty-three villians and seventeen borderers, with seventeen ploughs: there are two acres of meadow; pasture one mile long and the same in breadth: it returns 7 pounds (£) by weight.

The King holds Clismestone: there are five hides, but it was taxed for two hides and half in the time of King Edward: the arable land is twenty-four carucates: of it there is in Domain one hide: there are three ploughs, and nine bond servants, and thirty villains and twenty-four borderers, with seventeen ploughs: there are three acres of meadow; pasture four miles long and the same in breadth; wood three miles long and one mile in breadth: it returns 6 pounds (£) by weight.

The King holds Calweton: there are four hides, but it is taxed for two hides: the arable land is thirty carucates: of it there is in Domain one hide; and there are three ploughs, and eleven bond servants, and twenty-four villains and fourteen borderers, with fifteen ploughs: there is pasture three miles long and half a mile

in breadth; wood half a mile long and two furlongs broad: it returns 6 pounds (£) by weight.

The King holds Ritwore: in the time of King Edward it was taxed for one hide: the arable land is thirty carucates: of it there is in Domain one virgate of land; and there are three ploughs and eight bond servants, and thirteen villains and fifteen borderers, with ten ploughs: there are two acres of meadow; pasture one mile long and half a mile broad; wood half a mile long and two furlongs broad: it returns 4 pounds (£) by weight.

The King holds Pennehel: there are two hides and a half, but it is taxed for one hide: the arable land is thirty carucates: there is in Domain half a hide; and there are two ploughs, and ten bond servants, and twenty-four villains and sixteen borderers, with twenty ploughs: there are ten acres of meadow, and thirty acres of pasture, and thirteen acres of wood. It returns 150 shillings by weight.

These twelve forewritten Lands were held by Earl Herald in the time of King Edward; but those that are written after this were held by Britric, and afterwards by Queen Mathilda.

The King holds Conarditone: there are seven hides, but it is taxed for three hides. The arable land is forty carucates: of it there is in Domain one hide; and there are six ploughs, and thirty bond servants, and thirty villains and twenty borderers, with twenty-five ploughs: there is a mill that returns thirty pence; and one acre of meadow; the pasture two miles long and one mile broad: it returns 12 pounds (£) by tale.

The King holds Gudiford: there is one hide and three virgates of land, and it was taxed for one virgate in the time of King Edward: the arable land is sixteen carucates: of it there is in Domain one virgate of land; and one plough, with one bond servant, and seven villains and six borderers, with nine ploughs; and it returns 3 pounds (£). Of this manor St. Petroc had, in the time of King Edward, by custom, 30 pence or one ox.

The King holds Bernartone: there are eight hides, but it was taxed for four hides in the time of King Edward: the arable land is sixty carucates: of it there is in Domain half a hide; and there

are three ploughs, and ten bond servants, and thirty-two villains and twenty-five borderers, with fifteen ploughs: there are two acres of meadow; pasture two miles long and the same in breadth; wood one mile long and half a mile broad: it returns 10 pounds (£).

The King holds Melledham: there is one hide, and it paid tax for half a hide: the arable land is eight carucates: of it there is in Domain half a hide; and there are two ploughs, and three bond servants, and four villains and seven borderers, with three ploughs: there is pasture one mile long and half a mile broad: it returns 4 pounds (£).

Of the lands of Brictric, Aiulf holds one Manor, Carewrge: in the time of King Edward it was taxed for one virgate of land: the arable land is two carucates: there is one plough, with three borderers: formerly and now it is worth 7 shillings and 6 pence: it pays to St. Petroc by custom 8 pence.

Of the lands of Brictric, Walter de Clavile holds one virgate of land: the arable is two carucates: formerly it was worth 10 shillings, and now it is worth 5 shillings.

The Land of the Bishop of Execestre.

The Bishop of Exeter holds Trewel: in the time of King Edward it was taxed for one hide and half: the arable land is twenty carucates: there is in Domain two carucates; and four bond servants, and thirty villains, and four borderers, with twelve ploughs: there is pasture two miles long and two miles broad, and sixty acres of wood: formerly and now it is worth 4 pounds (£).

The same Bishop holds Matele. In the time of King Edward it was taxed for one hide, but nevertheless there is one hide and half: the arable land is fifteen carucates: in Domain there is one carucate, and three bond servants, and fifteen villains, and four borderers, with eight ploughs: there are forty acres of pasture and sixty acres of small wood: formerly it was valued at 40 shillings, and so now. The Market of this Manor is possessed by the Earl of Moreton, but the Bishop held it in the time of King Edward.

The same Bishop holds Tregel: in the time of King Edward it was taxed for two hides, but nevertheless there are twelve hides:

the arable land is sixty carucates: in Domain there are two carucates; and six bond servants, and eighteen villains, and twelve borderers, with sixteen ploughs: there is pasture half a mile in length and the same in breadth: the wood is one mile in length and half a mile in breadth; formerly it was valued at 100 shillings, but now at 8 pounds (£).

The same Bishop holds Pavtone: in the time of King Edward it was taxed for eight hides, but nevertheless there are forty-four hides: the arable land is sixty carucates: in Domain there are three carucates; and six bond servants, and forty villains, and forty borderers, with forty ploughs; there is pasture six miles long and two miles broad: wood two miles long and one mile broad: formerly it was valued at 10 pounds (£), and so now.

The same Bishop holds Bernerh: in the time of King Edward it was taxed for one hide *(note)* 24 pounds (£): the arable land is twenty-four carucates: in Domain there are two carucates; and six bond servants, and eight villains, and twelve borderers, with six ploughs: there are sixty acres of pasture and ten acres of wood: formerly it was valued at 40 shillings, and so now.

The same Bishop holds a Manor which is called the Church of St. Germanus: there are twenty-four hides; of these, twelve hides belong to the Canons, which now have been taxed, and the other twelve hides belong to the Bishop: the arable land is twenty carucates: in Domain there are two carucates; and four bond servants, and thirty villains, and twelve boaderers, with sixteen ploughs: there is pasture four miles long and two miles broad; wood two miles long and one mile broad: formerly it was valued at 100 shillings, now at 8 pounds (£). In the part of the Canons the arable land is twelve carucates: in Domain there are two carucates; and two bond servants, and twenty-four villains, and twenty borderers, with twenty-four ploughs: there is pasture two miles long and one mile broad: the wood is four miles long and two miles broad: it is worth 100 shillings to the Canons: in this Manor there is a Market on the Lord's day, but it is reduced to nothing because of the Market of the Earl of Moreton that is near it.

The same Bishop holds Lanherweu: in the time of King Edward it was taxed for one hide, but nevertheless there were three hides: the arable land is ten carucates: in Domain there is one carucate; and four bond servants, and eight villains, and six borderers, with three ploughs: there is pasture two miles long and one mile broad: formerly it was worth 100 shillings, now 50 shillings: Fulcard holds it of the Bishop.

Ricard holds of the Bishop, Thinten: in the time of King Edward it was taxed for half a hide, but nevertheless there is one hide: the arable land is six carucates: in Domain there is a carucate and half; with one bond servant, and five villains, and two borderers, with three ploughs; and one acre of wood: formerly it was worth 25 shillings, and so now.

The Bishop himself holds Languitetone: in the time of King Edward it was taxed for four hides, but notwithstanding there are eleven hides: the arable land is forty carucates: in Domain there are two carucates; and seven bond servants, and twenty-seven villains, and twenty borderers, with twenty-nine ploughs: there are eight acres of meadow, and one hundred acres of pasture, and ten acres of small wood: formerly it was worth 8 pounds (£) and now 17 pounds.

Rolland holds of the Bishop, Landicle: in the time of King Edward it was taxed for one hide, but notwithstanding there is one hide and half: the arable land is twelve carucates: in Domain there is one carucate; and three bond servants, and thirteen villains, and four borderers, with three ploughs: there are two acres of meadow, and pasture two miles long and one mile broad: formerly it was worth 40 shillings, now 20 shillings.

From the Church of St. Germanus there has been taken away one hide of land, which yielded by custome one tun (Cupa) of ale, and 30 pence, in the time of King Edward, to the same Church.

From the same Church has been taken away one acre of land, and from the arable land one carucate. From the same Church there has been taken away one virgate of land: *(note)* lins from the Earl of Moreton.

These were in the time of King Edward in Domain to this

Church; now they are held by Rainald and Hame. All these lands were held by Leuric, Bishop, in the time of King Edward.

The Land of St. Michael.

The Church of St. Michael holds Treiwal; Brismar held it in the time of King Edward: there are two hides, which were never taxed: the arable land is eight carucates: there is one plough, with one villain and two borderers, and ten acres of pasture: it is worth 20 shillings. Of these two hides Earl Moreton took away one hide: it is worth 20 shillings.

The Canons of St. Stefanus hold Lanscavetone: there are four hides of land, which never were taxed: the arable land is twenty carucates: there are three ploughs; and three miles of pasture; and sixty acres of wood: formerly it was worth 8 pounds (£) now 2 pounds. From this Manor the Earl Moreton has taken away one Market, which lay there in the time of King Edward, and was worth 20 shillings.

The Church of St. Petroc holds Bodmine: there is one hide of land, which hath never been taxed: the arable land is four carucates: there are five villains having two ploughs, with six borderers: there are thirty acres of pasture, and six acres of small wood.

St. Petroc hath there sixty-eight under his authority, and one Market. The whole is worth 25 shillings.

The same Church holds Lanwenehoc, which hath never been taxed; there is one hide: the arable land is four carucates: there are eight villains, with four borderers, having two ploughs: there are twenty-four acres of pasture: the whole is worth 10 shillings.

The same Church holds Rieltone, which was quit from all service in the time of King Edward; there are seven hides: the arable land is thirty carucates: in Domain there is one carucate; and two bond servants, and thirty villains and fifteen borderers, with eleven ploughs: there are sixty acres of wood; and three hundred acres of pasture: it is worth 4 pounds (£).

Berner holds of St Petroc, Lanchehoc. Caduualant held by sockage in the time of King Edward, nor could it be separated from it; there is one hide: the arable land is four carucates; there

is one plough, and two bond servants, and six borderers; and the pasture is one mile long and *(note)* the same in breadth: it is worth 10 shillings.

The Earl Moreton holds of St. Petroc, Tiwarthel. Algar held it in the time of King Edward, and it could not be separated from sockage; the arable land is twenty carucates: in Domain there are four carucates; and ten bond servants, and fifteen villains, and sixteen borderers, with ten ploughs: there are twelve acres of wood, and pasture five miles long and one mile broad: it returns 14 pounds (£) and 26 lesser pennies.

The same Earl holds of St. Petroc, Elhil. One Thane held it in the time of King Edward, and it could not be separated from sockage: there is one hide; the arable land three carucates, which are there with one bond servant, and two villains, and six borderers: there is one acre of meadow, and twenty acres of pasture: formerly it was worth 40 shillings, now 20 shillings.

The same Earl holds of St. Petroc, Calestoch; one Thane held it in the time of King Edward, and it could not be separated from sockage: there is one hide: the arable land is four carucates: there are twelve bond servants, and ten acres of wood: formerly it was worth 20 shillings, now 3 shillings.

The same Earl holds of St. Petroc, Cargav; one Thane held it in the time of King Edward, and it could not be separated from sockage: there are two hides: the arable land is fifteen carucates: in Domain there are three carucates, and sixteen bond servants, and twelve villains, and twenty-three borderers, with six ploughs: there is a mill that returns 30 pence, and four acres of wood: the pasture is two miles long and one mile broad: formerly it was worth 10 pounds (£), now 3 pounds.

The same Earl holds of St. Petroc, Trelloi; Godric held it in the time of King Edward, and it could not be separated from sockage: there is one hide: the arable land is four carucates: there are two ploughs, and five bond servants, and eight borderers, and fifteen acres of pasture: formerly it was worth 40 shillings, now *(note)* it is worth 20 shillings.

The same Earl holds of St. Petroc, Heglosenuder; Godric held

it in the time of King Edward: there is one hide, which never was taxed: the arable land is six carucates: there are two ploughs, and three bond servants, and two villains, and eight borderers, and twenty acres of pasture: formerly it was worth 20 shillings, and so now.

The same Earl holds of St. Petroc, Botcinnii; Eluui held it in the time of King Edward, and it could not be separated from sockage: there is one hide: the arable land is six carucates: there is one plough, with one bond servant, and three villains, and three borderers, and thirty acres of pasture: formerly it was worth 20 shillings, and now 15 shillings.

The same Earl holds of St. Petroc, Tremail; Eiulf held it in the time of King Edward, and it could not be separated from sockage: there are three virgates of land: the arable land is five carucates: there are three ploughs, and two bond servants, and two villains, and six borderers, and one hundred acres of pasture: formerly it was worth 30 shillings, now 20 shillings.

The same Earl holds Polrode; one Thane held it in the time of King Edward, and it could not be separated from sockage: there is half a hide: the arable land is three carucates: there are three ploughs, with one bond servant, and four villains, and three borderers, and three acres of wood, and seventeen acres of pasture: formerly it was worth 20 shillings, now 15 shillings.

Ricard holds of St. Petroc, Turgoil; Godric held it in the time of King Edward, and it could not be separated from him: there is one hide: the arable land is six carucates: there are four ploughs, and three bond servants, and four villains, and four borderers, and sixty acres of pasture, and three acres of small wood: formerly it was worth 20 shillings, and so now.

Machus holds of St. Petroc, Fosnewit; he held it in the time of King Edward, and it could not be separated from sockage: there is one hide: the arable land is eight carucates: there are four ploughs, with one bond servant, and eight villains, and eight borderers, and thirty acres of pasture: it returns 10 shillings.

St. Petro himself holds Elil: there are two hides: the arable land is eight carucates: there are four ploughs, and four bond

servants, and eight villains, and eight borderers: the pasture is one mile long and half a mile wide: it is worth 20 shillings.

St. Petroc himself holds Widie: there is one hide: the arable land is eight carucates: there are four ploughs, and two bond servants, and eight villains, and fifteen borderers, and twelve acres of wood: the pasture is one mile long and the same broad: formerly it was worth 25 shillings, when the Earl received it, now it is worth 15 shillings.

St. Petroc himself holds Tretdeno: there are two hides: the arable land is eight carucates: there are three ploughs and half, and two bond servants, and seven villains, and eight borderers, and one hundred acres of pasture: when the Earl received it, it was worth 25 shillings, now it is worth 15 shillings.

The Earl Herald took away from St. Petro unjustly one hide of land, because of which King William ordered that it should be held to judgment, and that the Saint should be again restored to possession, according to justice.

From the Church of St. Petroc there was taken away the Church of Cudiford, which paid in the time of King Edward to that Church by custome one ox and seven sheep: the King holds it.

The below written lands were taken away from St. Petroc. The Earl of Moreton holds them, and his men hold of him.

In Tregon is one virgate of land, which returned 15 pennies by custome.

In Trefornoc half a hide of land returned twelve sheep and 15 pennies.

In Trenhal one virgate of land returned six sheep and 8 pennies.

In Talcarn half a hide of land returned one ox.

In Tremhor half a hide of land returned one ox, and 15 pennies, and twelve *(note)* sheep.

In Nanchert one virgate of land returned 15 pennies.

In Trinnonec one virgate of land returned 15 pennies and five sheep.

All the above named lands were held by St. Petrocus in the time of King Edward: this land never paid tax, except to the Church itself.

The Canons of St. Achebrannus hold Lannachebran, and held it in the time of King Edward: there are eleven acres of land: the arable land is eight carucates: there are four ploughs and half, and five bond servants, and three villains, and eight borderers, and twenty acres of pasture: it is worth 40 shillings.

The Canons of St. Probus hold Lanbreboys; King Edward held it in his lifetime: there is one hide, and one virgate of land, and it never was taxed: the arable land is eight carucates: there are four ploughs and half, and five bond servants, and three villains, and eight borderers, and twenty acres of pasture: it is worth 40 shillings.

The Canons of St. Carentoch hold Langorroch, and they held it in the time of King Edward: there are three hides, all but two acres, and it was never taxed: the arable land is ten carucates: there is one plough and half, and three villains: it is worth 5 shillings; when the Earl took possession of the land it was worth 40 shillings.

The Canons of St. Pieranus hold Lanpiran, which was free to be separated in the time of King Edward: there are three hides: the arable land is eight carucates: there are two ploughs, and two bond servants, and four villains, and eight borderers, and ten acres of pasture: it is worth 12 shillings; when the Earl received it, it was worth 40 shillings. From this Manor two acres of land are taken away, which returned to the Canons in the time of King Edward provision for four weeks; and to the Dean 20 shillings by custom: Berner holds of the Earl of Moreton one of these; and of the other hide which Odo holds of St. Pieranus. The Earl took away all the money.

The Canons of St. Berrione hold Eglosberrie, which was free in the time of King Edward: there is one hide: the arable land is eight carucates: there is half a plough, and six villains, and six borderers, and twenty acres of pasture: it is worth 10 shillings; when the Earl received it, it was worth 40 shillings.

The Clergy of St. Neotus hold Neotestov, and they held it in the time of King Edward: there are two hides, which were never taxed: there are four borderers: it is worth 5 shillings. All this

land, except one acre of arable land which the Priests hold, was taken away from the Church by the Earl: Odo holds it of him, and it is worth 5 shillings; it was before this worth 20 shillings.

St. Constantin hath half a hide of land, which was quit from all service in the time of King Edward; but afterwards the Earl received the land: he returned the tax unjustly as the land of the villains: the arable land is four carucates: it is worth 10 shillings; when the Earl received the land it was worth 40 shillings.

The Land of the Church of Tavestoch.

The Church of Tavestoch holds Savioch; and Ermenhald held it of the Church in the time of King Edward: it was taxed for one hide: the arable land is nine carucates: in Domain there are two carucates, and four bond servants, and six villains, and seventeen borderers, with three ploughs: there are thirty acres of pasture, and sixty acres of wood: formerly it was worth 60 shillings, and so now.

The same Ermenhald holds of this Church, Antone: in the time of King Edward it was taxed for half a hide: the arable land is six carucates: in Domain there are two carucates, and four bond servants, and twelve villains, and fifteen borderers, with 5 ploughs: there are ten acres of pasture, and thirty acres of small wood: formerly it was worth 100 shillings, and so now. The Abbot of Hortune speaks ill of this land.

The same Er. holds of that Church, Rame: there is one hide, and it was taxed for half a hide: the arable land is seven carucates: in Domain there is one carucate, and four bond servants, and four villains, and fifteen borderers, with three ploughs: there are thirty acres of pasture, and ten acres of small wood: formerly it was worth 40 shillings, and so now.

The same Erm. holds of that Church, Tregernon: in the time of King Edward it was taxed for half a hide: the arable land is four carucates: there are three ploughs, and two bond servants, and nine villains, and one acre of meadow, and two acres of pasture: formerly it was worth 20 shillings, and so now.

The same Erm. holds of that Church, Pennehalgar: there is one virgate of land, and it was taxed for half a virgate: the arable land is two carucates: there is one plough, and six villains, and ten acres of wood, and ten acres of pasture: formerly it was worth 10 shillings, and so now.

The same holds of that Church, Talgar: in the time of King Edward it was taxed for half a virgate of land: the arable land is one carucate: there are two borderers, and one acre of pasture: formerly it was worth *(note)* 5 shillings, and so now.

Of this Church the Earl of Moreton holds unjustly the four Manors,—Boietone, Elent, Trebichen, Trewant.

The Abbot finds great fault—that they were taken away from the Church.

Land of the Earl of Moreton.

The Earl of Moreton holds of the King, Fawintone; Merlesuain held it in the time of King Edward, and it was taxed for one hide, but nevertheless there are two hides: the arable land is thirty carucates: in Domain there are six carucates, and twenty bond servants, and thirty villains, and twenty borderers, with fifteen ploughs: there are two hundred acres of wood, and pasture seven miles long and four miles broad: formerly it was worth 8 pounds (£), now it is worth 16 pounds, 18 shillings, and *(note)* 4 pennies.

The same Earl holds Liscarret; Merlesuain held it in the time of King Edward, and it was taxed for two hides, there are nevertheless twelve hides: the arable land is sixty carucates: in Domain there are three carucates, and twenty bond servants, and thirty-five villains, and thirty-three borderers, with three ploughs: there is a Market which returns 4 shillings, and a Mill which returns 12 shillings, and four hundred acres of wood; pasture four miles long and two miles wide: formerly it was worth 8 pounds (£), now it is worth 26 pounds, less by 20 pennies.

The same Earl holds Stratone; Osbn, Bishop, and Alured, Marescal, held it in the time of King Edward, and it was taxed for one hide, but nevertheless there are two hides: the arable land is thirty carucates: in Domain there are four carucates, and twenty

bond servants, and thirty villains, and twenty borderers, with fifteen ploughs: there are ten salt ponds, which return 10 shillings, and twenty acres of wood, and two hundred acres of pasture: formerly it was worth 30 pounds (£), and now 36 pounds, less by 20 pennies.

The same Earl holds Henliston; Algar held it in the time of King Edward, and it was taxed for one hide, but nevertheless there are two hides: the arable land is fifteen carucates: in Domain there are four carucates, and eighteen bond servants, and twenty villains, and fifteen borderers, with eight ploughs: there are ten acres of wood, and pasture three miles long, and two miles broad: formerly it returned 16 pounds (£), less by 20 pennies, and so now.

The same Earl holds Teglaston; Earl Herald held it in the time of King Edward, and it was taxed for two hides, but nevertheless there are six hides: the arable land is twenty carucates: in Domain there are two carucates, and fifteen bond servants, and twenty-four villains, and twenty borderers, with twelve ploughs: there are three hundred acres of pasture: formerly it was worth 12 marks of silver, now it is worth 16 pounds (£) *(note)*, less by 20 pennies.

PROCEEDINGS OF THE GENERAL MEETING

OF THE

Natural History and Antiquarian Society

OF PENZANCE,

HELD IN THE MUSEUM OF THE GEOLOGICAL SOCIETY,
FRIDAY NOVEMBER 4TH, 1853.

J. J. A. BOASE, ESQ., V.P., in the Chair.

The Chairman opened the business of the Meeting with the following address:—

"In the unavoidable absence of our worthy president, I have been called on as a vice-president to take the chair on the present occasion, and I will endeavour to perform the duties thus devolved on me as well as I possibly can, only regretting that Mr. Carne's place is not filled by an abler and better person. Were that gentleman present, he would, no doubt, on this as on previous occasions favour us with a sketch of the progress of science during the past year, more especially of those respective branches of natural history which are more particularly cultivated by this society; from my very limited acquaintance, however, with such subjects, it would be presumptuous in me to attempt such a *resumé*, for I have not given so much attention to the matter as I ought, but I have the satisfaction of knowing that my deficiencies will be amply compensated for by our excellent and talented secretaries, Mr. Rodd and Mr. Couch. Our other secretary, Mr. Millett, has left Penzance, but I am sure we shall not forget to record our thanks for the many valuable services he has rendered

us during a long series of years—I believe from our very commencement. In the Antiquarian department of our society, in which I am certainly more *au fait*, I am not aware that any discoveries of peculiar interest in our neighbourhood have been made during the past year; should such have occurred without my knowledge, no doubt they have not escaped the attention of our indefatigable friend Mr. Richard Edmonds.

"In that very valuable, though not very extensively cultivated, branch of antiquarian research, Numismatology, with which I am somewhat conversant, it may not perhaps be amiss to state what may be new to some, and cannot but be interesting to us all as Englishmen, that from discoveries in various localities during the last year or two, several new British monarchs have been added to our list; their very names had escaped all contemporary and later authorities, but, after the lapse of nearly 2,000 years, they have been brought to light by the plough and the spade—the medal, in the words of Addison,

'The Medal, faithful to its charge of fame,'

having now rescued them from oblivion. Their names all appear in a Latinized form with, I believe, but one exception, which has the Greek termination in *os*, *Dubnovellaunos;* the others, such as *Comius*, *Epillus*, *Meratus*, *Vericus*, &c., &c., have, as will be perceived, the Latin *us* of the Augustan age. We have now discovered, from the evidence of coins, that Tasciovanus was the father of Cunobelinus, or Cunobeline, so well known to us all under the name of Cymbeline from the drama of our immortal Bard. Most of these British kings, as they are called in common parlance, were rather *Reguli*—petty chieftains whose sway extended over a very limited teritory, resembling in this the kings we read of in the earlier writings of Moses, who, it will be recollected, in his account of the battle of the vale of Siddion, records the presence of nine kings at one time, five arranged against four,—one, whose whole force did not probably exceed some three or four score persons, with the magnificent title of 'King of Nations,' which was really nothing more than a superb Orientalism, meaning simply that the people under his rule con-

sisted of the men, probably of the runagates, from various Arab tribes. The want of attention to the Oriental character of the scriptures has been one pregnant source of error."

The Report of the Council was then read and adopted, and the following gentlemen were elected officers for the ensuing year:—

President.

Joseph Carne, Esq., F.R.S.

Vice-Presidents.

Rev. M. N. Peters. | Rev. C. V. Le Grice.
Walter Borlase, Esq.

Council.

J. S. Bedford, Esq.	E. Ley, Esq.	T. S. Bolitho, Esq.
A. Berryman, Esq.	E. Bolitho, Esq.	J. J. A. Boase, Esq.
R. F. Bolitho, Esq.	R. Pearce, Esq.	R. Millett, Esq.

Treasurer.

D. B. Bedford, Esq.

Secretaries and Curators.

E. H. Rodd, Esq. | R. Q. Couch, Esq.

DONATIONS TO THE SOCIETY,

For 1853.

Forty-three species of Lichens, from near Penzance. By the Rev. T. Salwey.

Nineteen species of Ferns, from the neighbourhood of Penzance. By Master T. Millett.

Rare Corallines, from Mount's-bay. By R. Q. Couch, Esq.

Numerous Fungi, Shells, Corallines, and Birds' Eggs. By E. Cocks, Esq.

Numerous specimens of Natural History preserved in spirits, and edible Birds' Nests of the Chinese. By. E. Cocks, Esq.

Report of the Royal Cornwall Polytechnic Society. By the Society.

Report of the Royal Institution of Cornwall. By the Institution.

REPORT

THE council, in reviewing the labours of the society for the past year, have great pleasure in recording the continued activity of the members. In almost every department renewed exertions have been made, which in many instances have been rewarded with fresh discoveries.

In the Natural History department among the *Mammalia* very little new has been added to our previous knowledge; but there seems to be but little doubt that we are occasionally visited by aquatic species which are by no means well ascertained. The specific character of our seals are, we believe, altogether undetermined, and the council are very desirous that every species caught within the district of West Cornwall should be forwarded to the society for the purpose of being examined. The same remark is equally applicable to the Cornish species of whales; but the council feel great pleasure in being enabled to state, that arrangements are now making whereby every species will be carefully examined, and all the information available from every source will be placed at the service of one of our secretaries for the benefit of the society. The council hope that notice of the captures of such creatures will be forwarded to the society.

ORNITHOLOGY.

By the continued activity of several of our members in this department, very little is allowed to escape our notice. During the past year we have to record no additions to the Fauna; but yet a well grounded suspicion exists that a species of swallow, hitherto unknown to Britain, occasionally visits our district. It was observed by Mr. Vingoe, who is well acquainted with all the birds which either live among us, or are only occasional visitors. This bird is figured in Gould's "Birds of Europe" as the *Rufous swallow*, and is distinguished by an uniform copper-coloured breast and belly.—A bird answering to this description was observed, but not captured. Among the rarer British birds captured during the past year may be mentioned the roller (a female having been taken in St. Just), the rose-coloured pastor, at Sennen, and several specimens of the fire-crested regulus, which may now be considered as by no means a rare bird, ten specimens having been recorded by this society within the last three years; previously it was altogether unknown as a Cornish bird, and only of very rare occurrence as a British species; Temminck's stint has also again been taken, both in summer and winter plumage.

ICHTHYOLOGY.

From a little more attention having been directed to the captures of fish, many of the rarer species have been brought before our notice. The red ribbon-fish *(Cepola rubescens)* has been taken, both at St. Ives and in Mount's-bay. The trumpet-fish, or bellows-fish *(Centriscus scolopax)*, has been taken off the Land's-end;—we had an opportunity of examining the head and snout only, but these are so peculiar that there can be no doubt as to the species from whence they were taken: a specimen was thrown ashore in St. Austle bay in 1804, and since that time it has not been captured in Cornwall till the present year: it is not uncommon in the Mediterranean. At the Land's-end a fine specimen of the silvery hail-tail was thrown ashore in the early part of the year (April): its tail was injured, but otherwise it was in a very good state of preservation. The Anglesea morris has been taken three times in

Mount's-bay, and once in Whitsand-bay, Land's-end. Several specimens of the boar-fish have again been taken off the Runnel-stone. Two specimens of the pilot-fish have been taken in Gwavas lake: there were no homeward-bound ships there at the time, but there had been during the preceding week. Three specimens of that strange little fish, the lancelet, have been taken by the dredge off the Logan-rock, and one off the Seven-stones in deep water. Another specimen of the spotted mackerel (figured in a former number of our Reports) has been again captured in East Cornwall: this species was first figured and described in our Transactions, and up to the present time is neither figured nor described in any other. Two specimens of the lesser forked-beard *(Raniceps trifurcatus)* have been taken in deep water.

CONCHOLOGY.

During the past summer the conchology of our district has been more carefully examined than before, both by dredging and inspection of our shores. Several additions have been made, and an authenticated list of these investigations will be published in our Transactions. None will be inserted but those procured during that period, or which have been procured by others who can authenticate their captures. By this means the council hope to have a very accurate list, though perhaps not so extensive an one as might otherwise be procured.

CRUSTACEA.

Materials are accumulating in this department of our labours, by which at some subsequent meeting a long and authorised list may be presented to the society, with an account of their habits and development. During the past year we have added to our Fauna *Portunus longipes*, several specimens having been taken in Mount's-bay, also a new species of *Axius*, or burrowing-shrimp, and a variety of prawn, both of which will be brought before the society to-day. Pennant's *Ebalia (E. Pennantii)* and Bryer's *Ebalia (E. Bryeri)* have been taken at St. Ives: a specimen of *Mysis Chamœleon* and *M. vulgaris*, which are believed to be

new to the Cornish Fauna are now found to be common. As it is of rare occurrence, it may be noticed that a very young specimen of the corwich *(Maiœ squinada)* has also been taken.

ZOOPHYTES.

The whole of our *Zoophytes* are undergoing a re-examination, and their physiology and development are being re-observed; several rare ones have been found, and among others a beautifully delicate one, resembling the finest down. This, it is thought, is a species first found in Mount's-bay by the Rev. Dr. Borlase, and sent by him to Ellis, who figures and describes it imperfectly in his quarto work on corallines.

BOTANY.

In this department we have been favoured with the assistance of visitors to our neighbourhood, as well as of our own members. We have a collection of ferns by a former contributor, and we have also had presented to our museum a collection of lichens from the immediate neighbourhood of Penzance, accompanied with critical remarks on the species. This communication will be inserted in our Report.

It is with regret that the council have officially to inform the society of the death of our late Treasurer, Richard Long, Esq. He was a very active and efficient officer, and did great service by his financial arrangements of the society's affairs. His attachment to the society has been evinced by his bequeathing to our use, either as income or a building-site, certain houses in the town, subject to a life annuity to his widow. While the council therefore greatly regret his loss, they cannot but feel pleased at this substantial remembrance.

EDWARD HEARLE RODD,
RICHARD Q. COUCH, } *Secretaries.*

Nov. 4th, 1853.

Observations on Penzance Lichens.

By The Rev. T. SALWEY, B.D.

Penzance, Oct. 31st, 1853.

To the Secretary of the Penzance Natural History Society.

Dear Sir,

As any additions to the Flora of a neighbourhood, however slight, may not be without some degree of interest to naturalists, I have ventured to send you some observations upon a few Lichens which I have gathered during a short residence amongst you, and which I perceive have not been hitherto published in your Reports. I would observe that these, with a few exceptions, have been gathered within a very limited range, viz., in the immediate neighbourhood of Penzance, the state of my health having precluded me from more distant expeditions. I think it very probable, if I had been enabled to extend my researches over a wider field, that a few other species might have been added to the list. To avoid mistakes, I have numbered the specimens, that it may be seen at once to which particular specimen my observations refer. I would have deferred this communication to the period of my leaving Penzance; but a wish having been expressed that I should communicate to the society the present result of my researches, that it may be laid before the ensuing meeting, I send it to you as it is, only regretting that in its present state it should not be more worthy of your notice. You will perceive that three of the specimens in the collection have been hitherto gathered only by Mr. Ralfs, and two of these I believe to be new.

I subjoin first a list of the Lichens added to your Flora, and will then make a few observations upon such of them as are best known.

I am, Dear Sir,

Yours, very truly,

T. SALWEY.

1. *Opegrapha Chevallieri*
2. *Verrucaria biformis*
3. ———— *codonoïdea*
4. ———— *immersa*
5. ———— (undetermined)
6. ———— *murina*, Tayl. Fl. Hib.
7. ————, *nova* species: Trevayler
8. ————, *nova* species
9. ———— *dermatodes*, Tayl. Fl. Hib.
10. ———— (undetermined)
11. ———— *irrigua*, Tayl. Fl. Hib.
12. ———— *gemmifera*, do.
13. ———— *umbrina*
14. *Pertusaria ceuthocarpa*
15. *Variolaria velata*
16. *Spiloma gregarium* ε. *dubium*
17. *Variolaria discoidea*
18. ———— *terricola*, Tayl. Fl. Hib.
19. *Lecidea petræa*
20. ——— *aromatica*
21. ——— *vermifera*, Nylander Obs. Lich. 2, 1853
22. ——— *viridescens*
23. ——— *Lightfootii*
24. *Biatora denigrata*, Fries
25. *Lecidea morio*
26. ———, *nova* species; Trengwainton
27. ——— *contigua*
28. *Bæomyces anomalus*, Tayl. Fl. Hib.: Gulval Cairn.
29 *Lecanora coarctata*
30. *Lecanora exigua*
31. ———— *subfusca*, var. *bryophila*
32. *Parmelia saxatilis*, δ. *parasitica*
33. *Endocarpum smaragdulum*
34. *Lecidea, nova* species
35. ——— *anomala* γ. *Gagei*. Sch. *Lichen dolosus*, E. B.
36. *Collema furvum*
37. ——— *Schraderi*
38. *Lecidea, nova* species
39. *Urceolaria gibbosa*
40. *Lecanora, nova* species
41. ———— *involuta*, Tayl. Fl. Hib.
42. *Isidium coccodes*
43. *Lecidea coniops*
44. ——— *scabra*, Tayl. Fl. Hib.
45. *Pertusaria pustulata*, Ach.
46. *Verrucaria trachona*, Tayl. Fl. Hib.
47. ———— *patula*, Leight. Ang. Lich., p. 61
48. *Stereocaulon nanum*
49. *Lecidea geomæa*, Tayl. Fl. Hib.
50. *Parmelia erosa*, Eng. Bot. Supplt., 2807
51. *Lecidea disciformis*, Fries and Nylander, Lamorna.
52. ——— *atro-flava*, Eng. Bot.: rocks on the coast beyond Newlyn.

OBSERVATIONS.

1. *Opegrapha Chevallieri*, Leighton, British *Graphideæ*, p. 10, Pl. v., fig. 3.

This is so named by Mr. Leighton. He informs me that it is the *Opegrapha lithyrga* of Chevallier. It is included in *Opeg. saxatilis* of British Flora with *calcarea* of De Candolle and *rupestris* of Persoon.

3. *Verrucaria codonoïdea*, Leighton, Ang. Lich. p. 53.

Common upon stones in walls.

This is distinguished by a thin smooth polished crust of a brownish copper-colour, and very small, though well-defined, hemispherical papillose apothecia scattered rather profusely over the crust.

4. *Verrucaria immersa.*

On sandstone rocks upon the shore at Lelant.

This does not present the usual appearance of the plant, in which the apothecia form small cavities in the stone; here, however, the stone is of so friable a nature as scarcely to admit this effect to be produced. Mr. Leighton however says of this plant, "I incline to think it may be the *Verrucaria immersa*, Hoffm. (Ang. Lich., Leighton, p. 57). The sporidia correspond in size and form, but the septum is not discernible, the whole being filled with large granular matter, as occurs in all sporidia at a certain stage, when septa, if existing originally, are either broken up, or with difficulty discernible."

5. *Verrucaria* (undetermined).

Castle Horneck: upon the mortar of the wall at the entrance-gate.

Of this specimen Mr. Leighton remarks, "Its dimidiate perithecium and sporidia seem to bring it near to *Verr. papillosa*, Tayl., and Leighton, Ang. Lich., but the colour of the thallus is different. It may be a state of that plant, but I cannot speak confidently."

I would only add to the above that *externally* it bears some resemblance to *chlorotica*.

6. *Verrucaria murina.*

Sandstone rocks upon the shore at Lelant.

Mr. Leighton remarks on this,—"Very imperfect; but the section of the apothecium, and size and form of the sporidia, with the general colour of the scanty thallus, refer it to *Verr. murina*, Leight. Ang. Lich., p. 44, t. xix., fig. 3."

I have no doubt that more perfect specimens might be obtained from the above locality if carefully sought for. Mr. Leighton, in the work referred to, describes the *murina* as a new species from a specimen in Mr. Borrer's herbarium, sent to him by the late Dr. Taylor of Dunkerron. I am not aware of its having been gathered before in England.

7. *Verrucaria,—nova* species. nitescens

Trevayler.

Mr. Leighton, who kindly examined this plant for me under his microscope, informs me that "it has a dimidiate perithecium; the sporidia in asci, linear, small, uniseptate, with two round nuclei in each cell, pale, about the same size and form as those of '*Verr. byssacea vera* Schær.,' in Pl. xvi. of the Ang. Lich., but in this latter plant the sporidia are not in asci, and are clearly 3-septate."

The crust of this plant is of a pale brownish-white with a pinky hue suffused over it, of a soft and glistening appearance, and with slight wavy lines on the surface. The apothecia are small, papillose, smooth, but not shining, and of a full black colour, with a minute pore. Should it prove to be, as I believe, an undescribed species, I would venture to call it *Verr. nitescens.*

8. *Verrucaria,—nova* species. V. perminuta

Upon stones in walls in different places. Paul hill, Trereife, Madron, &c.

This is a plant also which has not hitherto been noticed. The crust is of a dark brownish-olive colour; where not much exposed to light, of a brighter olive: somewhat polished, spreading extensively over the surface of the stone: the apothecia hemispherical, somewhat flattened, and polished. Mr. Leighton informs me

that under the microscope the perithecium appears to be dimidiate; sporidia fusiform, from five to seven in number, septate, indistinct; cells filled with spores.

9. *Verrucaria dermatodes*, E. B. Sup. 2607, fig. 2, Tayl. Fl. Hib.; *Verr. nitida* ε. *dermatodes*, Leight. Ang. Lich., p. 36.

Trevayler; scarce.

This is very similar in appearance to *nitida* as to the apothecia, but it is distinguished by the crust; that of *nitida* being covered, more or less, with minute white scales, whereas the crust of *dermatodes* has a clear vellum-like appearance, and is of a more shining and glistening aspect than that of *nitida*. As variations in the crust, however, are scarcely sufficient grounds on which to establish a separate species, and as Mr. Leighton, in a note appended to his description of this plant in his Angiocarpous Lichens, informs us that, though all the English specimens of *nitida* have the white scales, yet that foreign specimens are without them: I quite agree with him in the propriety of making *dermatodes* a mere variety of *nitida*.

10. *Verrucaria* (doubtful).

Upon the mortar of a wall in a lane by the Madron road, about a mile from the town, on the left-hand side of the road.

Upon requesting Mr. Leighton to examine the apothecia of this plant, he informed me that their structure is like those of *immersa*, but the sporidia like those of *patula*. If more perfect specimens should be found they might enable us to determine the species, which, for the present, must remain doubtful.

11. *Verrucaria irrigua*, Tayl. Fl. Hib.; Leight. Ang. Lich., p. 56.

Tremenheere.

The section of the apothecium corresponds exactly with Mr. Leighton's Plate xxiv., figs. 4 and 6. Taylor's *Verr. rubiginosa* is probably the same. The plant gives the rock on which it grows a remarkably red or rusty appearance.

12. *Verrucaria gemmifera*, Tayl. Fl. Hib.; Leight. Ang. Lich., p. 47, Pl. xx., fig. 3.

Upon the wall of the public road below Trereife, a little above the bridge, and upon a wall at Gulval.

The colour of the crust seems to vary greatly in this plant. It is usually of a bluish-grey tinge, as I find it at Oswestry, and in Wales, and as an authentic specimen was, from Dr. Taylor. Mr. Leighton, however, mentions two specimens, one in Mr. Borrer's herbarium, sent to him by Harriman from the North of England, and another in the herbarium of the Rev. Churchill Babington, gathered by him at Loch Coriskin, Skye, both of which have a thick white crust; but Mr. Leighton, without hesitation, refers both these to *gemmifera*. It will be observed that the crust of my specimen is green, Mr. Leighton however decides it to be *gemmifera:* I gathered however one minute specimen at the Land's-end with the usual bluish-grey tinge, but it was too unsatisfactory a one to enter in the herbarium.

16. *Spiloma gregarium*, ε. *dubium*., Eng. Fl., Vol 5.

The genus *Spiloma* I observe is not common in this neighbourhood, owing probably to the moisture of the climate, and this perhaps is the reason why the *Calicia* are not met with here; for in both these genera the rapid dissolution of the apothecium into powder, which characterizes these plants, requires a hot and dry atmosphere, and if the propagation of the species depends, as it probably does in a normal state, upon the perfection of the apothecia, then the climate being unsuitable for the due development and maturation of these, would account for the absence of this class of plants, or for their being only found, as in the case of the present variety, in a degenerate state: for the varieties, *dubium*, *detritum*, and *microstigma* of this species are described as having no sporules; that is, the climate is unfavourable to the production of that on which the continuance of the species depends; and hence their infrequency in a moist climate. Thus, Fries remarks that the *Spilomata* are more frequently met with in hot countries.

21. *Lecidea vermifera*, Nylander, Obs. Lich., 2, 1853.

Upon a stone wall in a field at the back of Trevayler House, near Gulval, and upon Paul hill, near the mine.

This, which Fries would call a *Biatora*, is new to the English Flora. Mr. Leighton informs me that it has lately been discovered by Nylander near Paris, and published by him under the above name. Mr. Leighton, before he was aware of Nylander's description of the plant, had already remarked in the specimens I sent him, the peculiar *vermicular* appearance of the sporidia, and suggested the name *vermicularis*. Mr. Leighton has since found the plant plentifully near Shrewsbury, and has also detected it amongst a large collection of *Lecideæ* sent him by Mr. Borrer, and gathered by that distinguished botanist many years ago in Sussex, but who apparently did not recognise its claims to be a new species.

24. *Biatora denigrata?* Fries; *Lecidia varia, ι. denigrata*, Schærar, Enum. Lich., p. 83.

On a boarded building at the corner of a lane on the Madron road (left-hand side), about a mile from the town.

We have no authentic specimen to compare this with, but both Mr. Leighton (who has also found it) and myself believe it to be the *B. denigrata* of Fries. It is evidently closely allied to *varia*, which Schærar (not adopting Fries's genus *Biatora)* still describes as a *Lecidea*, and of which his variety *denigrata* has black shields, and which he regards as the *Biatora denigrata* of Fries. The structure too of the apothecium, showing it to be a *Biatora*, leaves little doubt that it is the plant described by Fries under the above name.

25. *Lecidea morio, γ. coracina*, Fries; *L. macula*, Tayl. Fl. Hib.

On trap, and rocks of the primitive formation, near the Logan-stone and Porthcurnow. Lamorna, Mr. Ralfs.

This appears almost like a black stain upon the rock, but the appearance arises principally from the exposed hypothallus. If minutely examined, the scales of the true crust will be seen

scattered profusely over the hypothallus. These are sometimes themselves nearly black, more usually of a dark cinereous grey, and sometimes of a pale fawn colour, in which latter state the plant is the first variety, or *L. testudinea* of Fries.

26. *Lecidea,—nova* species. squamulosa

Upon a wall below Trengwainton, by the side of the footpath leading to the ponds.

Thallus between crustaceous and cartilaginous. In its more perfect state it is squamulose, but in an older state, the ends of the scales having perished, the remains of them are flat, and closely appressed to the stone, and in this state they lose their colour and become white, giving the plant somewhat of the appearance of *Lecidea aromatica*. The apothecia are black, the disk slightly convex, and resting either upon the scales of the thallus, or upon the hypothallus.

27. *Lecidea contigua*, Fries and Schærar.

This specimen, and almost all that have hitherto been considered as the *Lecidea confluens*, is found by comparison with authentic specimens from Fries, in the possession of my friend Mr. Leighton, to be the *contigua* of that author. It is indeed doubted whether we possess a single specimen of the true *confluens* of the continental authors.

28. *Bæomyces anomalus*, Tayl. Fl. Hib.

Gulval Cairn.

This is a *Biatora* of Fries, but as this author has a *Biatora anomala*, if it should be described hereafter as a *Biatora* I would call it *Biatora Taylori*. It is common in North Wales about Barmouth.

34. *Lecidea,—nova* species.

Gathered by Mr. Ralfs at Lamorna.

This is hitherto a unique specimen, though I hope Mr. Ralfs may be able to find more of it. It consists of a thin closely-

pressed crustaceous thallus of a dusky green colour, with irregular warty protuberances and flattened scales intermixed. The apothecia, which are extremely minute, and scarcely visible without a glass, have scarcely any border, and are of a dull reddish-brown; some of them are of a pale fawn colour, but these appear to be older states of the apothecium in which the disk has worn away, leaving the pale colour of the hypothecium visible: should it prove to be, as I believe it, undescribed, I would venture to call it *Lecidea Ralfsii*, from its discoverer.

38. *Lecidea,—nova* species.

Paul hill.

The thallus in this lichen is crustaceous, very thin, and of a somewhat soft and mealy texture, cracked in a wavy manner into irregular areola: of a pale sulphur colour, and bearing some resemblance, at first sight, to *atro-virens*. Apothecia black, very small, sunk in the crust, with a thick border of a darker colour than the disk.

40. *Lecanora cervina,*—state of (?)

Lamorna, Mr. Ralfs.

Crust in roundish convex scales of a pale yellowish-brown; apothecia in raised clusters resting upon a white substratum; disk reddish-brown with a pale border.

Though I believe this plant to be a state of *cervina*, yet, as it does not quite correspond with Schærar's description of it, I speak with much hesitation about it. I have it also from Miss Millett's collection from the Scilly Islands.

43. *Lecidea coniops.*

Rocks on the coast beyond Newlyn; gathered in company with Mr. Ralfs.

This plant has been for some time distinguished by British botanists, though, in consequence of the discontinuance of the Supplement to the English Botany, it has not, with many other additions to our lichens, been hitherto described and published.

It is not uncommon in North Wales, and probably grows frequently upon maritime rocks of a primitive formation. Schærar makes it a variety of *sabuletorum*.

44. *Lecidea scabra*, Tayl. Fl. Hib.: *protrusa*, Fries, Eur. 324; Schærar, Exs. 578.

Upon rocks near the Logan-stone, and at the Land's-end; gathered also by Miss Millett in the Scilly Islands.

I am indebted to my friend Mr. Leighton for identifying this plant, and for the synonyme of Fries, by which name, as being the earlier, it ought to be called. I have gathered it formerly at Barmouth, and Mr. Leighton detected it at Holyhead in 1851.

45. *Pertusaria pustulata*, Ach.

Trevayler; scarce.

I gathered this plant in 1847 in the island of Guernsey: it had been already figured by Salter, and was ready for publication in the Supplement to the English Botany when that work was discontinued.

50. *Parmelia erosa*, Eng. Bot. Suppmt, t. 2807.

Upon stones in a farm-yard at Nancothan.

This plant is identical with those gathered by me at Barmouth, one of which was figured in the Eng. Bot. Supplt. as above. I consider the plant gathered in this neighbourhood by my friend Mr. Ralfs to be distinct from this, and to be the *Parmelia tribacia* of Ach. and Schærar. I am aware that Schærar quotes the *erosa* of English Botany as a synonyme of *tribacia*, but a long acquaintance with both plants has convinced me that they are different. I gathered the *tribacia* in Guernsey in the year 1847, and my friend Mr. Borrer has also met with it in Sussex, though not in fruit as it is in Guernsey and at Penzance. The *erosa* of English Botany has a much more lax mode of growth, and is free from the soridiæ with which the *tribacia* is so abundantly scattered. The apothecium of the *erosa* is *black*, whereas that of the *tribacia* of Schærar is *brown*, as *is also* that of our plants both in Guernsey

and at Penzance. The thallus also of the *erosa* is in smaller scales, and is much more divided than in *tribacia*, which grows closely appressed to the tree. What the *Squamaria tribacia* is, described in the Eng. Fl., vol. v., I cannot say. No figure is referred to, and the description does not well accord with our plant, or with Schærar's description of it. No mention is made of the abundant sorediæ with which our plant is invested, and the apothecia are said to be *pale*, and notched and lobed in the circumference, whereas in our plant they are *brown*, and the border thick, smooth, and unbroken, not exhibiting any *notched* or lobed appearance.

In addition to the above notice of one of the lichens included in your former Reports, I would mention that the plant there named *Endocarpon Hedwigii*, is not the *Hedwigii* of the Eng. Flora. I was inclined myself to refer it to *pallidum*, which Schærar indeed considers as a variety of *Hedwigii*, but Mr. Leighton inclines to believe that it is the *Sagedia cinerea* of Fries. Now, upon referring to Fries, I see that what he describes as the *Sagedia cinerea* is the *Endocarpon cinereum* of Persoon, and *End. tephroïdes*, *Pyrenula microcita*, and *Verrucaria polythecia* of Ach. Lich. Un. and Lich. Suec., 275. He also refers to the fig. 2013 in Eng. Bot. as that of the plant he describes; now this is the *End. tephroïdes* of Eng. Bot., which is said to be found upon the ground at Burgh Head in Stronsa, one of the Orkneys. It is there stated that it seems to be the connecting-link between *Endocarpon* and *Verrucaria;* Schærar, in his Observations Criticæ, refers it to the former.

Postscript. July 4th, 1854.

Two of the plants described in this Paper were also found last summer at Torquay by Dr. Deakin, and have been described by him in the Annals and Mag. Nat. Hist. for January last. Dr. Deakin and I having sent some of our plants to Mr. Leighton, I am enabled to state, from his comparisons of them, that the plant described by me in this Paper as No. 26 is the same described in

Dr. Deakin's Paper as *Lecidea squamulosa;* and my *Verrucaria,* No. 8, proves to be the same as Dr. Deakin's *Verr. perminuta* in the same Paper. I would add, however, that Mr. Leighton is inclined to consider both Dr. Deakin's plant and mine to be only a state of Taylor's *Verr. trachona* in Fl. Hib.

In a collection of Lichens, gathered partly in the Scilly Islands and partly in this neighbourhood, by Miss Millett, and which she was kind enough to submit to my inspection, I observe the *Bæomyces anomalus, Lecidea coniops, Lecanora badia* and *cervina* (as I believe them to be), *Lecidea albo-atra* ε. *saxicola, epipolia,* and *Sticta aurata* (St. Mary's island, Scilly). There is also, both in her collection and in that of Mr. Ralfs, an *Urceolaria* which I have not met with before: it may perhaps be the *Urceol. scruposa* γ. *verrucosa* of Schærar. The apothecia, however, have not the thick margin of any form of *scruposa* that I have met with, but on the contrary have a very thin one: they are mostly very small and sunk in the crust, and in a more adult and expanded state are smaller than the usual forms of *scruposa:* in this state too they are a good deal raised above the crust. The hypothecium is of a pale yellowish colour. It is met with both at Lamorna and Cairn Galva.

The Popular Antiquities of Polperro and its neighbourhood.

By THOMAS Q. COUCH, Esq., M.R.C.S., &c.

Part 1. Popular Mytholygy.

"The intelligible forms of ancient poets,
The fair humanities of old religion,
The power, the beauty, and the majesty,
That had their haunts in dale, or piny mountain,
Or forest by slow stream, or pebbly spring,
Or chasms and watery depths; all these have vanished;
They live no longer in the faith of reason!
But still the heart doth need a language, still
Doth the old instinct bring back the old names!"

The Piccolomini.

ALTHOUGH Cornwall is rich in what has been expressively termed "folk lore," yet so little attention has it received, that a large store in this most interesting department of our antiquities remains for those who will take the trouble to garner it. The society would be doing good service in collecting and embalming those fragments of the past, before they are overtaken and obliterated by the progress of modern improvement. The present Paper is a contribution from the south-eastern part of the county on the subject of our fairy mythology, the other portions of our popular antiquities being reserved for another occasion. Those legends will be given which are still, or were until very lately, current among the peasantry, divested of those observations which might be made in proof of the fact, that these tales are not the creation of individual fancy,

but "remnants of ancient religious systems, the mental offspring of deep thinking sages;"* that they are, in fact, time-worn, but veritable relics of a belief "as regular, and, perhaps, more consistent than many parts of classical mythology."†

If arguments were needed to interest us in the consideration of these superstitions, many powerful ones might be offered; but it is only necessary to speak of their value to the general historian. They are monuments less tangible and defined, but to the full as interesting as Druidic altar, or ruined castle. In these superstitions "we trace," says an eminent antiquary, "the early formation of nations, their identity, or analogy, their changes, as well as the inner texture of the national character, more deeply, than in any other circumstance, even in language itself."‡ They are interesting, moreover, for the fancy which is in them, and the rich poetic light which age has cast about them. The little beings of the popular creed are a mixture of the graceful and the grotesque, mischievous, rather than powerful, and altogether more suited to the plot of a love-tale, or pastoral verse, than to be the machinery of lofty epic. As a proof of what they are capable in the hands of a true poet, we have only to point to the "Midsummer Night's Dream," in which Shakspere is remarkably true to legend. What a delicious bye-play do they make as they influence "unheard and unespied" the purposes of the lovers in the Athenian forest!

As long ago as the fourteenth century, Chaucer wrote,—

"Now can no man see neon elves mo,"

but they have outlived the "grete charite and prayers" of the limitour, and more recently the changes in politics and religion which took place "when Elizabeth and later James came in," notwithstanding the prognostications of the witty Dr. Corbet. It is scarcely to be expected, however, that they will, in like manner, withstand that great exorcist, which has, in a few years, so altered

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* Keightley, in "Fairy Mythology."

† Percy's "Reliques of Ancient English Poetry."

‡ "Essays on subjects connected with the Literature, Popular Superstitions, and History of England in the Middle Ages:"—By Thos. Wright, M.A., F.S.A.

the condition of society, and which is, at length, about to make its appearance among us. The belief in the fairy folk is by no means dead, though the people of the present generation hold it by a slighter tenure than their forefathers did, and are aware that "*piskies*" are *now* fair objects of ridicule, whatever they may formerly have been. An old woman, to whose recital of some of the following tales I have listened with mute attention, was a firm believer in their existence. I remember her pettish reply to a young friend who ventured to hint a doubt; "What! not believe in 'em, when my poor mother has been pinched black and blue by them!" The argument was thought conclusive, for we could not then see its falacy, though we afterwards learnt that the poor soul in question had not the kindest of husbands.

This creed has received so many additions and modifications at one time, and suffered so many abstractions at others, that it is impossible for me to make any arrangement of our fairies into classes.

"The Elves of hills, brooks, standing lakes, and groves"

are all now confounded under the generic name, "*pisky*." Some of the later interpolations are of a very obvious character, as will hereafter be noticed. Our piskies are little beings standing midway between the purely spiritual and the material, suffering a few, at least, of the ills incident to humanity. They have the power of making themselves seen, heard, and felt. They interest themselves in man's affairs, now doing him a good service, and anon taking offence at some trifle and causing him all sorts of annoyance. The rude gratitude of the husbandman is construed into an insult, and the mischievous sprites mislead him on the first opportunity, and laugh heartily at his misadventures. Their temper is uncertain and capricious. They are great enemies of sluttery, and great encouragers of good housewifery. They scatter money about the room, or drop it in the water-pitcher, as a reward for those servant girls whose kitchen is tidy and hearth cleanly swept, and who do not forget to fetch in a vesselful of clean spring water at bed-time. They ride the colts at night, and plait their manes and tails, or tangle them with the seed-vessels of the bur-dock.

In this neighbourhood is a field, where I am told the farmer never puts his horses but he finds them in the morning, harrassed by their pigmy riders, panting and sweating profusely. Their form of government is monarchical, as occasional mention is made of the "king of the piskies," but our country people know nothing of Oberon or Titania by name: this is easily accounted for, as the latter name at least is a modern addition, and derived from a classical source.* We are not even acquainted with Puck, unless "Jack with the Lantern" be one of his aliases. We have a few stories of pisky changelings, the only proof of whose parentage was that "they didn't goodey" (thrive). It would seem that fairy children of some age are entrusted to mortal care for a time, and recalled to fairy land. Adults are occasionally kidnapped by the "little folk," hence an old nursery rhyme saith,—

> "See-saw, Margery Daw,
> Sold her bed and lay upon straw,
> She sold her straw and lay upon hay,
> Piskies came and carr'd her away."

A disposition to laughter is a striking trait in their character, and a person who laughs heartily and unrestrainedly is said to do so "like a pisky." I have been able to gather little about the personality of these creatures. My old friend before mentioned described them as being "as high as the candlestick," or about a span. They are clad in green, and a straw hat, or little red cap, is their usual head-dress.

The most common stories are those told of the "pisky-led," and there is little variety in them, except in unimportant particulars. Some eager sportsman benighted in the fields, or jolly farmer "bousing at the nappy," turns his steps homeward, and on his way stumbles unexpectedly upon the scene of a pisky revel. It is a mutually unpleasant rencontre. The moment the intrusion is discovered the dance ceases, and the little elves rush upon the luckless wight, and commence a course of torment of the most ingenious character; he is "tweaked and pulled;"—led around the field a dozen times before he finds the stile leading out of it, and even then the discovery is made by his stumbling over it. Each

* *Vide* Keightley's Op. cit., Bohn's edit., Note to p. 325.

mishap is greeted by laughter of a peculiarly shrill vexatious character. Suddenly the scene changes: the moon crosses a dark cloud, and the little troop take advantage of the momentary obscurity and vanish. The unhappy traveller breathes freely again, and vainly fancies that he has got rid of his tormentors. After a while, he descries, across the moor, a light, which he takes to be the lantern of some belated swain, and joyfully hastens towards it, glad of any companionship. It moves, and he follows: just however as he has overtaken it he feels the ground getting softer, and softer, and at length finds himself knee-deep in the bog. The light has now disappeared, and he knows it to be a trick of that "shrewd and knavish sprite" Jack with the Lantern. A loud laugh sounds across the moor and is caught up among the hills. In a moment his pigmy tormentors gather round him, and renew their annoyance. We will not follow him further in his troubles. The sportsman after a time remembers the very simple means usually resorted to for dissolving these enchantments, and turns *his cap or pocket inside out:* or the farmer is stupidly forgetful until he finds himself mysteriously conducted back again to the kitchen of the very public house he left an hour or two before. After sundry restoratives, he gains courage to tell his story, staring frightfully as he recounts his troubles, and apparently afraid they are not yet over. He is of course reminded of what he ought to have done; his pockets are accordingly turned inside out, and he reaches home by another road without further molestation. I had a very elaborate story of this kind, a short time since, from a countryman who told it of his uncle; and every parish can furnish two or three of this kind.

The legends which follow are taken from a manuscript collection made five or six years ago, all careful copies of oral traditions still extant:—

A farmer, who formerly lived on an estate in this neighbourhood called Langreek, was returning one evening from a distant part of the farm, and in crossing a particular field, saw, to his surprise, sitting on a stone in the middle of it, a miserable looking creature, human in appearance, though dwarfish in size, and apparently

starving with cold and hunger. Piting its condition, and perhaps aware that it was of elfish origin, and that good luck would amply repay him for his kind treatment of it, he took it home, placed it by the warm hearth on a stool, fed it with milk, and shewed it great kindness. Though at first lumpish, and only half sensible, the poor bantling soon revived, and though it never spoke, became lively and playful. From the amusement it gave by its strange tricks, it soon became a general favourite in the family. After the lapse of three or four days, whilst it was at play, a shrill voice in the farm yard or "town place" was heard to call three times,—"Colman Grey!" at which the little fellow sprang up, and gaining voice, cried,—"ho! ho! ho! my daddy is come!" flew through the key-hole, and was never afterwards heard of. A field on the Langreek estate retains the name of "Colman Grey" to this day.*

The piskies seem to have delighted in mischief for its own sake. Old Robin Hicks, a fisherman of this town, who, many years ago, lived in a house on the cliffs near the quay, has more than once, on stormy winter nights, been alarmed at his supper by a voice sharp and shrill, coming apparently through the key-hole,—"Robin! Robin! your boat's adrift!" He has risen and hastened down on the quay to find his boat riding safely at her moorings. The piskies would testify their joy at the success of their deceit by laughing and "tacking their hands."

Another story is told by our fishermen, but many of its particulars are forgotten. John Taprail, long since dead, had moored his boat in the evening beside a barge of much larger size belonging to John Rendle, who traded in her between this place and Plymouth. In the middle of the night he was awoke by a voice requesting him to get up and "shift his rope over Rendle." He accordingly rose, but found to his chagrin that he had been called unnecessarily, for both the boat and the barge were riding quietly at their ropes. On his way back again, when very near his home, he observed a number of the little people arranged in a circle under shelter of a boat that was lying high and dry on the beach.

* This legend was contributed to the "Folk-lore" collection of the Athenæum by my father.

Each was holding his little cap in his hand, except one, who, sitting in the centre, was engaged in distributing a heap of money, throwing it into the caps after the manner in which cards are dealt. John Taprail crept slily towards them sheltered by the boat, and reaching round his own cap managed to introduce it into the circle. When it had received a good portion of the money, he slowly and cautiously withdrew it, and made off with the booty: the interloper, however, was discovered, and the whole circle joined in pursuing him. Having got a good start of the piskies, he managed to reach his house, and to close the door on his pursuers; but his escape was a narrow one, for he had left the skirts of his sea coat in their hands.

The next tradition well shows their caprice, and that they are easily offended by an offer of reward, however delicately tendered.

A farmer, residing at a particular farm-house in this neighbourhood, was surprised at the extraordinary quantity of corn which was threshed during the night, as well as puzzled to discover the mysterious agency by which it was effected. His curiosity led him to enquire closely into the matter. One moonlight night he crept stealthily to the barn-door, looked through a chink, and, to his astonishment, saw a little fellow, clad in a ragged green suit, wielding the flail with great skill, and rapidity. The farmer crept away unperceived, feeling very grateful to the pisky for his services. All night he lay awake, thinking in what way he could best show his gratitude. He settled, at length, that as the little fellow's clothes were somewhat the worse for wear, the gift of a new suit would be a proper way to lessen the obligation; so he had a suit of green made of what he judged to be the proper size, and this he carried early in the evening to the barn, and left there for the pisky's acceptance. At night he stole to the barn-door, to see how the gift was taken. He was just in time to see the elf put on the suit, with which he was very well pleased, for, looking down on himself admiringly, he sang,—

> "Pisky fine, and pisky gay,
> Now will pisky fly away."

From thenceforth the farmer received no assistance from the fairy

flail. Another version of the pisky's song, equally common with the above, is,—

> "Pisky, new coat, and pisky, new hood,
> Pisky now will do no more good."

It is said of another farmer that he discovered two piskies threshing lustily in his barn, now and then interrupting their work, and enquiring of each other, in the smallest falsetto voice, "*I tweat! you tweat?*" After a while the flails ceased, and they surveyed their work. "We've threshed enough," observed one." "Quite enough! and thank ye!" said the incautious farmer. The elves instantly vanished and never more visited that barn. It will scarcely be necessary to remind the reader of the similarity of these tales and those which Milton speaks of as told by a country hearth, as

> "how the drudging goblin sweat
> To earn his cream-bowl duly set,
> When in one night, ere glimpse of morn
> His shadowy flail had thresh'd the corn
> That ten day-labourers could not end."

A farmer's boy, living at Portallow, was sent, one dark night, to procure some little household necessaries from a shop at Polperro. He was trudging backwards, having executed his business at the grocer's, and had reached Talland-sand hill, when he heard some one say, "I'm for Portallow green!" "As you are going my way," thought the lad, "I may as well have your company." Accordingly he listened for a repetition of the voice, intending to hail it. "I'm for Portallow green!" was repeated after a short interval. "I'm for Portallow green!" shouted the boy. Quick as thought he found himself on the green, surrounded by a throng of little laughing piskies. They were however scarcely settled before the cry was heard from several tiny voices, "I'm for Seaton beach!" (a fine expanse of sand on the coast between Looe and Plymouth and about seven miles distant from Portallow.) Whether he was charmed by this brief taste of pisky society, or was taken with their pleasant mode of travelling, is not stated, but he immediately rejoined, "I'm for Seaton beach!" Off he was whisked, and in a moment found himself on Seaton beach, engaged in a dance of the most lively and fantastic kind, for the nimble

manner in which his feet were flung about, in measure with the fairy tune which was played by one of the elves, was a perfect wonder to himself. After they had for a while danced "their ringlets to the whistling wind," the cry was changed to, "I'm for the King of France's cellar!" Strange to say, he offered no objection even to so long a journey. "I'm for the King of France's cellar!" shouted the adventurous youth, as he threw his parcel on the edge of the beach near the tide. Immediately he found himself in a spacious cellar, engaged with his mysterious companions in tasting the richest of wines, after which they passed through grand rooms, fitted up with a splendour which quite dazzled him. The tables were covered with fine plate and rich viands, as if in expectation of a feast. Thinking it would be as well to take away with him some small memorial of his travels, he pocketed a rich silver goblet. After a short stay, the piskies said, "Im for Seaton beach," which was repeated by the boy, and he was taken back as quickly as he went, reaching the beach in time to recover his parcel from the flowing tide. Their next destination was Portallow green, where they left our wondering traveller, who soon reached his home, delivered his message, and received a compliment from the good wife for his dispatch. "You'd say so, if you only know'd where I've been," said he. "Iv'e been with the piskies to Seaton beach, and I've been to the King of France's cellar, and all in five minutes." "The boy is mazed," said the farmer. "I thought you'd say I was mazed, if I didn't bring something with me to show vor't," he replied, at the same time producing the goblet. The farmer and his family examined it, wondered at it, and finished by giving a full belief to the boy's strange story. The goblet is, unfortunately, not now to be produced in proof to those who may still doubt, but we are told that it remained the property of the boy's family for generations after.

Our legend of the pisky midwife is so well related by Mrs. Bray, in her book on the "Tamar and Tavy," that it need not be again told, the only material difference being, that it was the accidental application to her right eye of the soap with which she was washing the baby that opened to her the secrets of fairy-land.

I have been unable to discover any traces of a belief in water spirits. An old man, just deceased, was accustomed to relate that he saw, on a stormy day, a woman, her face buried in her long dank locks, sitting on the rocks at Talland sand, and weeping. On his approach, she slid into the sea and disappeared. The story is easily accounted for, by supposing that he saw a seal (an animal that has been noticed in that locality on more than one occasion), the long hair being an allowable embellishment. Our fishermen talk of "*môrmaids*," and the egg-cases of the rays and sharks are popularly called "*môrmaids' purses.*" It is extremely doubtful whether they formed a part of the old mythology.

Besides the piskies, but of a widely different character and origin, are the spectre huntsman and his pack, now known as the "Devil and his dandy dogs." The genius of this tradition is essentially Scandinavian, and reminds us of the "Wirtend heer," and the grim sights and terrible sounds which affright the peasant at night in the forests of the north. Though at first the frightful spectres were the ghosts of slain warriors speeding from Valhalla, and pursuing their prey through the murky air, the tradition has become variously altered in different countries, but in all retaining enough of the terrible to mark its derivation. The "Devil and his dandy dogs" frequent our bleak and dismal moors on tempestuous nights, and are also occasionally heard in the more cultivated districts by the coast, where they are less frightful in their character. They are most commonly seen by those who are out at nights on wicked errands, and woe-betide the poor wretch who crosses their path. An interesting legend will illustrate the little we have heard of this superstition in its wilder forms.

A poor herdsman was journeying homeward across the moors one windy night, when he heard, at a distance among the tors, the baying of hounds, which, time and circumstances considered, he immediately recognised as the dismal chorus of the dandy dogs. Very much alarmed, he hurried onwards as fast as the treacherous nature of the soil and the uncertainty of the path would allow; but the melancholy yelping of the hounds, and the holloa of the huntsman as it sounded across the waste, became every moment

nearer and nearer. After a considerable run, they had so gained upon him, that on looking back,—Oh! horror!—he could distinctly see hunter and dogs. The former was terrible to look at, and had the usual complement of "*saucer*" eyes, horns, and tail, accorded by the common consent of story-tellers to the legendary devil. He was, of course, black, and carried a long hunting-pole. The dogs, too, were black, many in number, each of them snorting fire, and uttering a yelp of a peculiarly frightful character. With no cottage, rock, or tree to give him shelter, in despair, he was about to abandon himself to their fury, when, at once, a happy thought suggested a resource. Just as they were about to rush upon him he fell on his knees in prayer, earnest, no doubt. Immediately, as if resistance had been offered, the whole pack stood at bay howling loudly and dismally. The hunter shouted, "*bo shrove!*" "which," says my informant, "means in the old language, '*the boy prays!*'" and at the words they all drew off and disappeared.

The dandy dogs are not unfrequently seen on the sea-coast, and the stories told are so well attested, that there is reason to conclude the narrators have really seen a pack of weasels, of which it is well known that they hunt gregariously at night, and when so engaged do not scruple to attack man.

Sir Walter Scott suggested that "a work of great interest might be compiled upon the origin of popular fiction and the transmission of similar tales from age to age and from country to country." It is certainly surprising to find those stories which we have been taught to associate with a particular house or family told of persons and places very remote. There is, however, only space here to point to certain instances of this community of fable. There is a great similarity, for instance, between the story of Colman Grey, and that of Gilpin Homer, as given in the notes to the "Lay of the Last Minstrel," and we are reminded of the same story when reading of the "Killcrops" in Luther's "Colloquia Mensalia." Our story of the pisky thresher has its counterpart in the fairy lore of almost all the countries in Europe, and so close is the resemblance, that the pisky song would seem almost a verbatim

translation from one language to another. In England, at Hilton Hall, the fairy sang,—

> "Here's a cloak, and here's a hood!
> The cauld lad of Hilton will do no more good."

The Brownie of Scotland is offended in like manner at a present of clothes, and cries,—

> "A new mantle and a new hood!
> Poor Brownie! ye'll ne'er do mair gude." *

The tale of the Midwife is also of very wide distribution, and may be found, with slight variation, in Gervan of Tilbury.† The legend of "I'm for Portallow green" resembles, in many points, that told of Lord Duffus, in the "Minstrelsy of the Scottish border;" and that related of a butler in the noble house of Monteith.‡ The reader will also be reminded of the story of the Haunted Cellar, by Crofton Croker.

These curious superstitions have received many modifications in the course of ages. The promulgators of later creeds appear to have despaired at the task of rooting out old and stubborn prejudices, and to have preferred grafting their new doctrines on the old. As instances of these modifications may be mentioned, the widely spread belief that piskies are the souls of unbaptized children; the modern name of the spectre huntsman and his hounds; and the efficacy of prayer in driving the latter.

From the little I know of the fairy superstitions of Cornwall (which little has been gleaned entirely from oral tradition), it would not be easy to classify the beings of the popular creed: still there are characteristics which, when more is known of them, may serve to distribute them into classes resembling those of the continental nations, whose mythology has kept its distinctions more definitely than our own. Our domestic spirit, who rewards the thrifty servant, and punishes the slattern, and who, in the old manor-house at Killigarth, when the family was at church, was wont to watch the joint as it roasted on the spit, and to admonish

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* Keightley's Fairy Mythology.

† On My last visit to St. Michael's Mount this story was told me by an intelligent guide, among other tales of what he called "the little people."

‡ Mackie's "Castles, Palaces, and Prisons of Mary Queen of Scotts."

the servant to remove it when sufficiently drest, agrees with the gobelin of Normandy, the kobold of Germany, the nisse of Norway, the Tomte gubbe of Sweden, and the Brownie of Scotland, and may be found distinct from our little pastoral fairy whose chief amusement is music and dancing, laughter, and mischief, and who makes those rings in our meadows "of which the ewe not bites."

In Cornwall we might expect to find the "swart fairy of the mine" occupying a prominent place in our mythology. It would therefore be interesting to know whether this is the case from those who are acquainted with the "folk-lore" of our mining districts, especially as it has been a disputed point whether the *Duergars*, or dwarf tribe, dwelling in hills and caverns, and distinguished for their skill in metallurgy really formed a portion of the old belief, or were, as Sir Walter Scott thought them, the diminutive natives of the Lappish and Finnish nations, driven to the mountains by their invaders. The general belief seems to be "that they are personifications of the subterraneous powers of nature;" for, as Keightley observes,* "all parts of every ancient mythology are but personified powers, attributes, and moral qualities."†

* Op. cit.

† For an account of the mischievous spirit "Nick," whose name and attributes are forgotten, except in connexion with the ceremonies of Nickynan-night, and the Harvest festival,—*vide* Report of the Royal Institution of Cornwall for 1842.

List of Algæ *found in the district during the present year.*

By J. RALFS, Esq., M.R.C.S., &c.

HONORARY MEMBER OF THE SOCIETY.

Mesogloia Zosteræ, Aresch. ..	Frond slender, simple, or with a few simple branches, villous, peripheric filaments longer than the diameter of the axis; cells twice as long as broad. On the leaves of *Zostera* near the Long Rocks.
——— *Griffithsiana*	Abundant near the Long Rocks.
Sporochnus villosus	A solitary specimen cast up near the Long Rocks.
Laurencia cæspitosa	Common in Mount's-bay.
Nitophyllum Bonnemaisoni ..	Cape Cornwall; not uncommon.
——— *Gmelini*	Ditto.
Rhodymenia jubata	A single specimen found in Mount's-bay, by Dr. Fox.
Dudresnaia divaricata.....	Mount's-bay; not unfrequent.
Nemaleon lubricum	Land's-end.
Griffithsia equisetifolia	Land's-end.
Halymenia ligulata.....	A few specimens cast up at the back of the Old Pier.
Kallymenia Dubyi	Occasionally in Mount's-bay; but more plentiful near Cape Cornwall.
Cladophora diffusa	Scarce near Cape Cornwall.
Conferva Melagonium	Plentiful near Cape Cornwall.

Description of a specimen of a Pocket Dial used in ancient times, and referred to by Shakspeare, in "As you like it:" Act 2, Scene 7.

By JONATHAN COUCH, Esq., F.L.S., &c.

MEMBER OF THE SOCIETY.

I am not acquainted with more than one author, and that is Shakspeare, who has made any reference to an instrument for measuring time, that could be carried about and used as conveniency suited, before the invention of watches; or afterwards, by persons by whom the purchase of a watch might involve too great a cost. It is not improbable also, that the use of this instrument might have been continued, long after watches had become known, by some persons who might give a preference to the more ancient and simple instrument; perhaps as being less likely to get out of order. At the present time it is become so scarce, that I have never had an opportunity of seeing more than two of them, and one of these had lost its narrow moveable ring, and so had been rendered useless.

Shakspeare represents the melancholy Jaques as describing the actions of a moralizing professional fool, who was in the possession of one of these instruments:—

> "And then he drew a Dial from his poke:
> And looking on it with lack lustre eye
> Says, very wisely, It is ten o'clock."

But an instrument, once so common, of which a specimen is now offered to the notice of the society, may require a brief description, in order to be understood. It consists of a broad brass ring, which

for use is to be suspended by a string, by which means, when held free, it will necessarily fall into the perpendicular position. On the external margin of what will be the northern side of this ring is an inscription,—

> "Set me right and use me well,
> And i ye time to you will tell."

and on the other side, which is to be directed toward the course of the sun, are the initials of the names of the months, in two parallel series answering to each other according to the length of their days. Each of these months is divided by short lines into four weeks; and there are letters also referring to the quarters of the year. On the concavity, or inner side of this broader ring, are marked the hours of the day, in three somewhat oblique lines, running parallel, and which answer to the time as marked by the sun in the seasons of spring, summer, autumn, and winter; and finally a narrow ring is made to slide along the middle of that part of the broader ring which is, when in use, to be held against the sun. A small prominency on one part of this ring contains an aperture, the use of which is to admit a sunbeam into the concavity of the instrument; and this light, falling on one of the lines which mark the hours, tells with much accuracy what the time is by the sun. This moveable aperture is to be properly set on the line of the border-ring that marks the week of each month, and thus is made to vary in each revolution of the seasons.

An inspection will shew that this little instrument is even more simple than the description would appear to represent it; and there are occasions when the use of it might be revived, with advantage to the traveller in distant countries, where no opportunities exist to repair a watch that has become disordered.

On a new species of Axius.

By JONATHAN COUCH, Esq., F.L.S., &c.

MEMBER OF THE SOCIETY.

THE specimen to be described has a distinct rostrum, or snout, which is divided by a median ridge, having three crenations and a terminal one at the point. The tail is broad; its middle lamina having two distinct spines on the centre, from which spring two ridges, one on each side. Each lateral plate is marked with a central ridge of fine spines, all rounded except the middle one, and edged with a broad margin of stiff hair. The abdominal appendages are very large, and on the sides of the third, fourth, and fifth abdominal plates are tufts of organs much like those on the abdominal appendages, which may perform some office in respiration. An examination of the branchiæ could not be made without destroying the specimen. The two setæ of the internal antennæ are five-times the length of their peduncle. External antennæ about two-thirds the length of the body; and they have on their under surface for nearly half their length a line of thick set bristly hairs, one of the generic characters of the genus. The external pedipalps are foot-shaped, very hairy; and the third joint of this part has on its under surface near its distal end a spine, which is more plainly seen after death, on account of the thick and long hair which covers that edge. The anterior feet, or hands, do not differ much in size, and the arm has no hooked process: their moveable finger is moderately strong, and obtuse, narrower than the fixed finger, and each of the fingers has four depressions or channels, with long and strong hairs; a few sparingly sprinkled hairs are dotted over the smooth pinkish surface. Two pairs of the feet are didactyle, including the hands as above, and the three posterior are

one-clawed; all the feet ciliated on both edges, the two outer-joints especially so. The abdomen is crustaceous.

Ths specimen above described was taken in the harbour at Polperro, where it lay concealed in sand that was covered over with a flat stone.

There is only one species of the genus *Axius* known to Naturalists; and from this, as described by Milne Edwards (Histoire des Crustaceis, vol ii., p. 311), and by Mr. Bell (History of British Crustacea, p. 228), my specimen differs so considerably, as to give me strong reason to suppose it is a new species, in which opinion I am supported by an eminent naturalist, after a minute examination of the specimen. He points out to me, as prominent characters of distinction, that "the edges of the rostrum are prominent-toothed; the longitudinal medial line high in relief; upper surface of the moveable fingers deeply furred; natatory appendages truncated; sides nearly parallel, toothed; laminæ broad, ribbed, spines numerous. There is a peculiarity in the union of the carapace with the abdomen. In all other respects it carries the markings of its family. The caudal extremity in Cuvier's work (Pl. 31 bis) bears a greater resemblance to it than that depicted in Mr. Bell's book."

There appears to be considerable discrepancy between the descriptions of the few naturalists who have described and represented the only known but rare species of *Axius (A styrinchus)*; for while M. Edwards describes, "Une touffe de poils de chaque coté, sur les troisieme, quatrieme et cinquieme anneaux de l'abdomen," of this species, and which appear conspicuously on that which I have now described, no such thing appears in Mr. Bell's figure or description, nor in a pencil-drawing in my possession of a female, which I formerly sent to that gentleman. But again, Mr. Bell represents and describes the terminal segment of the body, or plate of the tail, as being elongate triangular; whereas in the present specimen it is of equal length throughout, and in my drawing in pencil it is intermediate between the two. There are other characters, however, which render it probable that the species here described is new to science, and therefore deserving of a place in the Report of the Society.

Translations from Domesday.

By JONATHAN COUCH, Esq., F.L.S.,

MEMBER OF THE SOCIETY.

(Continued from p. 125.)

The same Earl holds Tibestev; Radulf, Standard-bearer, held it in the time of King Edward, and it was taxed for one hide, nevertheless there are three hides: the arable land is thirty carucates: in Domain there are three carucates, and fourteen bond servants, and twenty-seven villains, and twenty borderers, with ten ploughs: there are forty acres of wood; pasture three miles long and one mile wide: formerly it was worth 12 pounds (£), now 15 pounds, and 18 shillings, and four pennies.

The same earl holds Trenwit; Sitric the Abbot held it in the time of King Edward, and it was taxed for two hides, but notwithstanding there are six hides: the arable land is four carucates: in Domain there are five carucates, and sixteen bond servants, and thirty villains, and thirty borderers, with twelve ploughs: there are forty acres of wood, and one thousand acres of pasture: formerly it returned 12 marks of silver, now it returns 25 pounds (£), and 18 shillings, and four pennies.

The same Earl holds Bernal; Brismar held it in the time of King Edward, and it was taxed for one hide, but there is one hide and half: the arable land is twenty carucates: in Domain there are three carucates, and ten bond servants, and twelve villains, and eighteen borderers, with twenty ploughs: there are forty-six acres of wood; pasture four miles long and two miles broad: formerly it was worth 12 marks of silver, now it is worth 12 pounds (£), 18 shillings, and 4 pennies.

The same Earl holds Moireis; Ordulf held it in the time of King Edward, and it was taxed for one hide, but notwithstanding there are two hides: the arable land is ten carucates: in Domain there are two carucates, and three bond servants, and five villains, and ten borderers, with five ploughs: there are one hundred acres of pasture, and two hundred acres of wood: formerly it was worth 100 shillings, now 9 pounds (£), 18 shillings, and 4 pennies.

The same Earl holds Trewitghi; Merlesuain held it in the time of King Edward, and it was taxed for one hide, but notwithstanding there are two hides: the arable land is sixteen carucates: in Domain there are five carucates, and seven bond servants and fifteen villains, and seventeen borderers, with eight ploughs: there are sixty acres of wood, and three hundred acres of pasture: formerly it was worth 100 shillings, now 8 pounds (£).

The same Earl holds Alwaretone; Aluuard held it in the time of King Edward, and it was taxed for two hides, but notwithstanding there are three hides: the arable land is sixty carucates: in Domain there are three carucates, and eleven bond servants, and thirty-five villains, and twenty-five borderers, with twelve ploughs: there are three acres of meadow; pasture two miles long and one mile wide: formerly it returned 8 pounds (£), now 20 pounds.

The same Earl holds Tedintone; Ordulf held it in the time of King Edward, and it was taxed for two hides, but notwithstanding there are three hides: the arable land is fifty carucates: in Domain there are five carucates, and thirteen bond servants, and twenty-five villains, and thirty borderers, with twelve ploughs: there are two acres of meadow; pasture three miles long and one mile wide; wood one mile long and the same in breadth: formerly it was worth 8 pounds (£), now 20 pounds.

The same Earl holds Rislestone; Brismar held it in the time of King Edward, and it was taxed for one hide: the arable land is fifteen carucates: in Domain there are two carucates, and twelve bond servants, and fifteen villains, and twenty-four borderers, with eight ploughs: there are sixty acres of wood, and three hundred acres of pasture: formerly it was worth 30 pounds (£), now 15 pounds, and 1 mark of silver, and 5 shillings.

The same Earl holds Landiner; Eddida held it in the time of King Edward, and it was taxed for one farthing of land, but notwithstanding there is one virgate of land: the arable land is two carucates, and there are six borderers, and five acres of meadow, and forty acres of pasture: formerly it was worth 10 shillings, now 30 pennies.

The same Earl holds Hela; Ailm held it in the time of King Edward, and it was taxed for half a ferling, but notwithstanding there are three ferlings: the arable land is one carucate: there are two borderers, and one acre of meadow, and thirty acres of pasture: formerly it was worth 30 pennies, now *(note)* 12 pennies.

The same Earl holds Treiswantal; Sistric held it in the time of King Edward, and it was taxed for one ferling, but notwithstanding there is one virgate of land: the arable land is two carucates: there are five borderers, and thirty acres of pasture: formerly it was worth 10 shillings, now 30 pennies.

The same Earl holds Heli; Sistric held it in the time of King Edward, and it was taxed for one ferling of land, but notwithstanding there is half a hide of land: the arable land is two carucates: there are two villains, and two borderers, and thirty acres of pasture: formerly it was worth 15 shillings, now 5 shillings.

The same Earl holds Peret; Wadhel held it in the time of King Edward, and it was taxed for one ferling of land, but notwithstanding there is one virgate of land: the arable land is two carucates: there are two villains, and two borderers, and five acres of pasture: formerly it was worth 7 shillings, now 2 shillings.

The same Earl holds Trewille; Alestan held it in the time of King Edward, and it was taxed for one ferling of land, but notwithstanding there is half a hide, and one borderer, and five acres of wood, and sixty acres of pasture: formerly it was worth 10 shillings, now 3 shillings.

The same Earl holds Trebihan; Osulf held it in the time of King Edward, and it was taxed for one ferling, but notwithstanding there is half a hide: the arable land is two carucates: there

are three borderers, and two hundred acres of pasture: formerly it was worth 20 shillings, now 5 shillings.

The same Earl holds Hesland; Alestan held it in the time of King Edward, and it was taxed for two ferlings of land: the arable land is two carucates: there are three borderers, and thirty acres of pasture: formerly it was worth 20 shillings, now 2 shillings.

The same Earl holds Dunhevet: in the time of King Edward it was taxed for one virgate of land, but notwithstanding there is one hide: the arable land is ten carucates: in Domain there is one carucate, three bond servants, and one villain, and thirteen borderers, with four ploughs: there are two mills, which return 40 shillings, and forty acres of pasture: formerly it was worth 20 pounds (£), now 4 pounds. There is a Castle of the Earl.

Rainald holds of the Earl, Trewelle; Brismar held it in the time King Edward, with the Manor that is called Gargalle; it was taxed for one virgate of land: the arable land is five carucates: in Domain there is one carucate, and four bond servants, and six villains, and six borderers, with three ploughs: there is wood three miles long and one mile broad: formerly it was worth 60 shillings, now 25 shillings.

The same holds of the Earl, Trewellogen; Aluuin held it in the time of King Edward, and it was taxed for three ferlings of land, but notwithstanding there is half a hide: the arable land is six carucates: in Domain there is one carucate, and eight bond servants, and four villains, and four borderers, with two ploughs: there are 40 acres of pasture, and sixty acres of wood: formerly it was worth 60 shillings, and so now.

The same holds of the Earl, Lanher; Edmer held it in the time of King Edward, and it was taxed for one ferling, but nevertheless there is one virgate of land: the arable land is one carucate, which is there with two borderers and six bond servants: there are ten acres of pasture, and thirty acres of wood: formerly it was worth 8 shillings, and so now.

The same holds Languer; Grim held it in the time of King Edward, and it was taxed for one ferling, but nevertheless there

is one virgate of land: the arable land is one carucate: there are two borderers, and ten acres of wood: formerly it was worth 4 shillings, and now 2 shillings.

The same holds Brodehoc; Aluric held it in the time of King Edward, and it was taxed for one virgate of land, but nevertheless there is half a hide: the arable land is four carucates: there are two ploughs, and two bond servants, and three villains, and four borderers, and ten acres of pasture, and twenty acres of wood: formerly it was worth 12 shillings, now 10 shillings.

The same holds Raswale; Aluena held in the time of King Edward, and it was taxed for one virgate of land, but nevertheless there is half a hide: the arable land is three carucates: there are two ploughs, and three bond servants, and two villains, and two borderers, and thirty acres of pasture: formerly it was worth 10 shillings, now 7 shillings.

The same holds Chilorgoret; Vetred held it in the time of King Edward, and it was taxed for half a ferling: there is one ager (field?) of land: the arable land is one carucate: there is one bond servant, and ten acres of wood: formerly it was worth 3 shillings, and so now.

The same holds Telbrig; Aluric held it in the time of King Edward, and it was taxed for half a ferling: there is one ager (field?) of land: the arable land is one carucate: there is one borderer, and thirty acres of pasture: formerly it was worth 15 pennies.

The same holds Lantien; Alric held it in the time of King Edward, and it was taxed for one ferling: the arable land is two carucates, but nevertheless there is one virgate of land: there are three borderers, and three acres of wood: formerly it was worth 10 shillings, now 2 shillings.

The same holds Lanlaron; Sbern held it in the time of King Edward, and it was taxed for one ferling, but nevertheless there is one virgate of land: the arable land is three carucates: there is one plough, and two bond servants, and four borderers, and sixty acres of pasture, and five acres of wood: formerly it was worth 10 shillings, now 5 shillings.

The same holds of the Earl, Tremetone; Brismas held it in the time of King Edward, and it was taxed for two hides and half, but nevertheless there are five hides: the arable land is twenty-four carucates: in Domain there are three carucates, and fifty bond servants, and twenty villains, and thirty borderers, with seven ploughs: there are forty acres of pasture, and twenty acres of wood: formerly it was worth 10 pounds (£), now 8 pounds. There the Earl has a castle, and the market returns 3 shillings.

The same holds of the Earl, Calestoch; Asgar held it in the time of King Edward, and it was taxed for one hide, but nevertheless there are two hides and half: the arable land is twelve carucates: in Domain there are two carucates, and twelve bond servants, and thirty villains, and thirty borderers, with six ploughs: there are one hundred acres of wood: pasture thirty miles long and one mile wide: formerly it was worth 6 pounds (£), now 3 pounds.

The same holds Pennhalgar; Elmer held it in the time of King Edward, and it was taxed for one virgate of land, but nevertheless there is one hide: the arable land is sixteen carucates: in Domain there is one carucate, and four bond servants, and eleven villains, and thirty borderers, with seven ploughs: there are thirty acres of pasture, and four acres of wood: formerly it was worth 60 shillings, now *(note)* 30 shillings.

The same holds of the Earl, Macretone; Eduuard held it in the time of King Edward, and it was taxed for one virgate of land, but nevertheless there is one hide: the arable land is eight carucates: there are three ploughs, and four bond servants, and six villains, and eight borderers, and sixty acres of pasture: formerly it was worth 30 shillings, now 20 shillings.

The same holds Trehinoch; Algar held it in the time of King Edward, and it was taxed for one acre of land, but nevertheless there is one virgate of land: the arable land is one carucate, which (plough ?) is there with one bond servant, and two villains, and two borderers: formerly it was worth 10 shillings, and so now.

The same Rainald holds Argentel; Brismar held it in the time of King Edward, and it was taxed for one virgate of land: the

arable land is three carucates: there are two ploughs, and three villains, and six borderers: formerly it was worth 20 shillings, now 15 shillings.

The same holds of the Earl, Haltone; Herald, the Earl, held it in the time of King Edward, and it was taxed for one virgate of land, but nevertheless there is one hide: the arable land is ten carucates: there are four ploughs, and seven bond servants, and ten villains, and ten borderers, and forty acres of pasture, and twelve acres of wood: formerly it was worth 40 shillings, now 30 shillings.

The same holds Piletone; Merlesuain held it in the time of King Edward, and it was taxed for one virgate of land, but nevertheless there is half a hide: the arable land is six carucates: there are three ploughs, and three bond servants, and seven villains, and seven borderers, and one hundred acres of pasture, and forty acres of wood: *(note)* formerly it was worth 30 shillings, now 20 shillings.

The same Rainald holds Tremor; Brismar held it in the time of King Edward, and it was taxed for one ferling, but nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, with one villain, and three borderers, and ten acres of wood, and ten acres of pasture: formerly it was worth 10 shillings, and so now.

The same holds Languer; Grim held it in the time of King Edward, and it was taxed for one ferling, but notwithstanding there is one virgate of land: the arable land is one carucate: there are two borderers, with one bond servant, and ten acres of wood: it is worth 2 shillings.

The same holds Trehavoc; Brismar held it in the time of King Edward, and it was taxed for one ferling, but nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, and two borderers, and five acres of pasture: formerly it was worth 5 shillings, and so now.

The same holds Pænpau; Aluric held it in the time of King Edward, and it was taxed for one ager (field) of land: the arable land is three carucates: and there are (three ploughs), and four bond servants, and six villains, and six borderers, and three acres

of meadow, and six acres of wood, and thirty acres of pasture: formerly it was worth 30 shillings, and so now.

The same holds Treverm; Leveron held it in the time of King Edward, and it was taxed for one ferling, but nevertheless there is one virgate of land: the arable land is three carucates: and there are two ploughs and a half, with one bond servant, and five villains, and five borderers, and ten acres of wood, and sixty acres of pasture: it is worth 10 shillings.

The same holds Niweton; Aluric held it in the time of King Edward, and it was taxed for one virgate of land, but notwithstanding there is half a hide: the arable land is six carucates: there are two ploughs, and three bond servants, and three villains, and twelve borderers, and twelve acres of pasture: formerly it was worth 30 shillings, now 20 shillings.

The same holds Pideleford; Chinestan held it in the time of King Edward, and it was taxed for one virgate of land: the arable land is six carucates: and there are two ploughs, with one bond servant, and three villains, and three borderers, and one hundred acres of pasture, and five acres of wood: formerly it was worth 20 shillings, now 15 shillings.

The same holds Bichetone; Chinestan held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there are two bond servants, and four borderers, and ten acres of pasture, and fifteen acres of wood: formerly it was worth 5 shillings, now 3 shillings.

The same holds Aisstone; Aluric held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is two carucates: there are four borderers, with half a plough, and one acre of pasture: the wood is six furlongs long, and three furlongs broad: it is worth 10 shillings.

The same holds Newetone; Aluric held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is eight carucates: there are ten villains, and twenty borderers, with one plough, and three bond

servants, and half a mile of pasture: the wood is two miles long, and one furlong broad: formerly it was worth 40 shillings, now 30 shillings.

The same holds Lander; Saulf held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is one carucate; and there is one plough, with one bond servant, and one villain, and three borderers: there are eight acres of meadow, and thirty acres of pasture: formerly it was worth 5 shillings, and so now.

The same holds Richan; Wallo held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there are two bond servants, and two borderers, and ten acres of pasture: formerly it was worth 10 shillings, now 3 shillings.

The same holds Langenewit; Brictric held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there are eight borderers, and three bond servants, and ten acres of wood, and five acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The same holds Trewillen; Alric held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one ferling of land: the arable land is one carucate: there are two bond servants: formerly it was worth 2 shillings, and so now.

The same holds Caer; Brismar held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one virgate of land: the arable land is two carucates: there are three bond servants, and five acres of pasture, and twelve acres of wood: formerly it was worth 25 shillings, now 5 shillings.

Ricard holds of the Earl, Cudawoid; Aluuin held it in the time of King Edward, and it was taxed for one hide: the arable land is twelve carucates: in Domain there are four carucates, and twelve bond servants, with five ploughs: there are sixty acres of wood; pasture five miles long and two miles broad: formerly it was worth 100 shillings, now 40 shillings.

Ricard holds Polescat; Alnod held it in the time of King

Edward, and it was taxed for one ferling, nevertheless there are two ferlings of land: the arable land is one carucate: there are three borderers, and forty acres of pasture: formerly it was worth 30 pennies, and so now.

The same holds Thersent; Aluuin held it in the time of King Edward, and it was taxed for one hide, nevertheless there are two hides: the arable land is twelve carucates: in Domain there are two carucates, and six bond servants, and five villains, and eleven borderers, with five ploughs: there is pasture three miles long and two miles broad: the wood is one mile long and half a mile broad: formerly it was worth 30 shillings, now 20 shillings.

The same holds Buchent; Bristuald held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is half a plough, and four borderers, and thirty acres of pasture, and twenty acres of wood: formerly it was worth 3 shillings, and so now.

The same Ricard hold of the Earl, Croftededer; Colo held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide and half: the arable land is ten carucates: there are four ploughs, and two bond servants, and six villains, and seven borderers, and twenty acres of pasture, and twelve acres of wood: formerly it was worth 40 shillings, now 25 shillings.

The same holds Lavredoch; Aluric held it in the time of King Edward, and it was taxed for three virgates of land, nevertheless there is one hide: the arable land is eight carucates: there are three ploughs, and four bond servants, and four villains, and ten borderers, and thirty acres of pasture, and forty acres of wood: formerly it was worth 30 shillings, now 25 shillings.

The same holds Lansalhus; Almar held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is five carucates: there are two ploughs, and three bond servants, and two villains, and two borderers, and thirty acres of pasture: formerly it was worth 10 shillings, and so now.

Ricard holds of the Earl, Tiwardrai; Colo held it in the time

of King Edward, and it was taxed for one hide, nevertheless there are two hides: the arable land is twelve carucates: in Domain there are four carucates, and seven bond servants, and eight villains, and eighteen borderers, with three ploughs: there are six acres of wood, and one hundred acres of pasture: formerly it was worth 4 pounds (£), now 40 shillings.

The same holds Bodewitghe; Aluric held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is seven carucates, and there are so many (ploughs) there, and nine bond servants, and ten villains, and twenty-three borderers, and one mile of pasture: formerly it was worth 40 shillings, now 30 shillings.

The same holds Bodeworgom: Aluuin held it in the time of King Edward, and it was taxed for three virgates of land, nevertheless there is one hide; the arable land is ten carucates: there are three ploughs, and four bond servants, and four villains, and twelve borderers, and four acres of wood, and two hundred acres of pasture: formerly it was worth 40 shillings, now 30 shillings.

The same holds Ticoith; Godric held it in the time of King Edward, and it was taxed for one virgate of land: the arable land is five carucates: there are three ploughs, and five bond servants, and four villains, and eight borderers, and eight acres of wood, and forty acres of pasture: formerly it was worth 30 shillings, now 20 shillings.

The same holds Ghivaile; Godric held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is six carucates: there are five ploughs, and eight bond servants, and five villains, and thirteen borderers, and five acres of wood, and one hundred acres of pasture: formerly it was worth 40 shillings, now 30 shillings.

The same holds Polduh; Aluuin held it in the time of King Edward, and it was taxed for one hide: the arable land is ten carucates: there are five ploughs, and eight bond servants, and eight villains, and fourteen borderers, and fifteen acres of wood; pasture three miles long and one mile broad: formerly it was worth 40 shillings, now 30 shillings.

The same holds Woderon; Aluuin held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is three carucates: there is a plough and half, and two bond servants, and two villains, and four borderers, and sixty acres of wood; pasture five miles long and one mile wide: formerly it was worth 20 shillings and now 10 shillings.

The same holds Treverben, Aluuin held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one virgate of land: the arable land is three carucates; and there is one plough and half, and two bond servants, and two villains, and three borderers, and two acres of wood, and twenty acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The same holds Brethei; Ailbright held it in the time of King Edward, and it was taxed for two ferlings: the arable land is four carucates: there is one plough and half, and five bond servants, and five borderers, and twenty acres of pasture: formerly it was worth 20 shillings, now 10 shillings.

The same holds Lisnestoch; Ailbric held it in the time of King Edward, and it was taxed for one ferling: the arable land is five carucates: there are two ploughs, and two bond servants, and four borderers, and one acre of wood, and twenty acres of pasture: formerly it was worth 15 shillings, now 10 shillings.

The same Ricard holds Wich; Colo held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is eight carucates: there are three ploughs, and four bond servants, and six villains, and ten borderers, and two acres of wood, and pasture one mile long and the same in breadth: formerly it was worth 20 shillings, now 30 shillings.

The same holds Penhalun; Erneis held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide and half: the arable land is ten carucates: there are six ploughs, and six bond servants, and eight villains, and twenty-two borderers, and six acres of wood: pasture one mile long and the same in breadth: formerly it was worth 40 shillings, now 30 shillings.

The same holds Donecheniv; Merlesuain held it in the time of King Edward, and it was taxed for one hide, nevertheless there are two hides: the arable land is 12 carucates: there are ten ploughs, and ten bond servants, and ten villains, and twenty borderers; pasture one mile long and the same in breadth: formerly it was worth 60 shillings, now 40 shillings.

The same holds Otrham; Eduui held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is six carucates: there are four ploughs, and six bond servants, and six villains, and eight borderers; pasture one mile long and broad: formerly it was worth 30 shillings, now *(note)* 20 shillings.

The same Ricard holds Hamotedi; Alric held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is six carucates: there are four ploughs, and three bond servants, and four villains, and eight borderers, and two acres of wood, and pasture five miles long and two miles wide: formerly it was worth 40 shillings, now 30 shillings.

The same holds Chilcoit; Colo held it in the time of King Edward, and it was taxed for one hide and half: the arable land is ten carucates: there are three ploughs, and three bond servants, and six villains, and eight borderers, and twenty acres of wood, and forty acres of pasture: formerly it was worth 40 shillings, now 20 shillings.

The same holds Trawiscoit; Merlesuain held it in the time of King Edward, and it was taxed for one hide, nevertheless there are two hides: the arable land is twelve carucates: there are six ploughs, and eight bond servants, and eight villains, and nine borderers, and a mill returns 2 shillings, and twenty acres of wood, and fifty acres of pasture: formerly it was worth 30 shillings, now 25 shillings.

The same holds Trewardevi; Britnod held it in the time of King Edward, and it was taxed for half a ferling of land, nevertheless there is one virgate of land: the arable land is one carucate: there is one villain, and two borderers, and thirty acres of pasture: formerly it was worth 5 shillings, now 2 shillings.

The same holds Landelech; Alnod held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is five carucates: there is one plough, and two bond servants, and two villains, and five borderers, and ten acres of pasture: formerly it was worth 15 shillings, now 10 shillings.

The same holds Ludvha; Aluuin held it in the time of King Edward, and it was taxed for one hide, nevertheless there are three hides: the arable land is fifteen carucates, and thirty carucates: there are three hides: there are twelve ploughs, and nine bond servants, and fourteen villains, and forty borderers, and three hundred acres of pasture: formerly it was worth 100 shillings, now 60 shillings.

The same holds Chelenoch; Godred held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is eight carucates: there are five ploughs, and five bond servants, and ten borderers, and six villains, and one hundred acres of pasture: formerly it was worth 30 shillings, now 20 shillings.

Turstin holds of the Earl, Treland; Toisuuald held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is five carucates: there are three ploughs, and four bond servants, and two villains, and six borderers, and three miles of pasture in length and two miles in breadth: formerly it was worth 30 shillings, now 25 shillings.

Turstin holds of the Earl, Penguare; Brismar held it in the time of King Edward, and it was taxed for half a ferling: there is one field (ager); the arable land is one carucate: there are two borderers, and two bond servants, and ten acres of wood, and seven acres of pasture: formerly it was worth 10 shillings, now 3 shillings.

Turstin holds of the Earl, Chenowen; Alnod held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is half a plough, with one bond servant, and two borderers,

and twelve acres of wood, and twenty acres of pasture: formerly it was worth 5 shillings, and so now.

The same holds of the Earl, Nantuat; Brismar held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one virgate of land: the arable land is two carucates: there are two bond servants, with one borderer, and six acres of pasture: formerly it was worth 2 shillings, now 12 pennies.

The same holds of the Earl, Trewinedoi; Merlesuuain held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, and two bond servants, with one villain, and two borderers, and fifteen acres of wood: formerly it was worth 5 shillings, now 3 shillings.

Turstin holds of the Earl, Sanguiland; Eduui held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is three carucates: there is half a plough, and two bond servants, and two villains, and thirty acres of pasture: formerly it was worth 7 shillings, now 5 shillings.

The same holds Wilevorde; Chenisi held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, with one bond servant, and two villains, and six borderers, and four acres of wood, and one hundred acres of pasture: formerly it was worth 7 shillings, now 5 shillings.

The same holds Treverbet; Eduuin held it in the time of King Edward, and it was taxed for three ferlings, nevertheless there is one hide: the arable land is carucates: there are two ploughs, and seven bond servants, and six borderers, and forty acres of pasture: formerly it was worth 20 shillings, and so now.

The same holds Talcar; Eduuin held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is half a hide: the arable land is three carucates: there are three villains, and six borderers, having one plough, and twenty acres of pasture: formerly it was worth 5 shillings, and so now.

The same holds Amal; Grim held it in the time of King Edward, and it was taxed for two ferlings, nevertheless there is half a hide: the arable land is three carucates: there is one plough, and four borderers, and five bond servants, and twenty acres of pasture: formerly it was worth 10 shillings, now 6 shillings.

The same Turstin holds of the Earl, Carnetone; Britferd held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there are six borderers, and four bond servants, and ten acres of wood, and one hundred acres of pasture: formerly it was worth 10 shillings, and so now.

The same holds Arganlis; Brismar held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is half a hide: the arable land is three carucates: there is half a plough, and seven borderers, with one bond servant, and ten acres of wood, and one mile of pasture: formerly it was worth 20 shillings, now 2 shillings.

The same holds Botharder; Grim held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is eight carucates: there are four ploughs, and seven bond servants, and ten villains, and twenty-four borderers, and twenty acres of wood, and thirty acres of pasture: formerly it was worth 35 shillings, now 20 shillings.

The same holds Trelwi; Aluuard held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is four carucates: there are two ploughs, and three bond servants, and three villains, and six borderers, and twenty acres of wood, and three hundred acres of pasture: formerly it was worth 25 shillings, now 15 shillings.

The same holds Trethac; Alric held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is seven carucates: there are two ploughs, and six bond servants, and four villains, and eight borderers, and forty acres of pasture: formerly it was worth 20 shillings, now 15 shillings.

The same holds Treworoc; Alric held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one hide: the arable land is five carucates: there is one plough, and two bond servants, and two villains, and eight borderers, and twenty acres of wood, and sixty acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The same holds Egloshos; Earl Herald held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is half a plough, and three bond servants, and three borderers, and twenty acres of pasture: formerly it was worth 10 shillings, and so now.

Turstin holds of the Earl, Woreslin; Dodo held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is five carucates: there is one plough, and seven bond servants, and sixteen borderers, and two acres of small wood, and one hundred acres of pasture: formerly it was worth 25 shillings, now 15 shillings *(note)*.

Hamelin holds of the Earl, Cariorgel; Eduui held it in the time of King Edward, and it was taxed for one ferling: the arable land is three carucates: there are two ploughs, and four borderers, and six acres of wood, and one hundred acres of pasture: formerly it was worth 15 shillings, now 10 shillings.

Hamelin holds of the Earl, Mideltone; Aluuin held it in the time of King Edward, and it was taxed for two hides and half, nevertheless there are five hides: the arable land is twenty carucates: there are eight ploughs, and seven bond servants, and fourteen villains, and twenty borderers, and six acres of wood, and one hundred acres of pasture: formerly it was worth 60 shillings, now 50 shillings.

The same Hamelin holds Lege; Aluuin held it in the time of King Edward, and it was taxed for one hide and half, nevertheless there are three hides: the arable land is fifteen carucates: there are six ploughs, and six bond servants, and eight villains, and twelve borderers, and ten acres of wood, and thirty acres ot pasture: formerly it was worth 40 shillings, now 30 shillings.

The same holds Boietone; Alnod held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is four carucates: there are two ploughs, and three bond servants, and two villains, and three borderers, and five acres of wood, and sixty acres of pasture: formerly it was worth 20 shillings, now 15 shillings.

The same holds Maronechirche; Brodre held it in the time of King Edward, and it was taxed for one ferling and half, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, with one bond servant, and one villain, and two borderers, and twenty acres of pasture: formerly it was worth 10 shillings, now 6 shillings.

The same holds Orcert; Sauuin held it in the time of King Edward, and it was taxed for two ferlings and half, nevertheless there is half a hide: the arable land is three carucates: there are two ploughs, with one bond servant, and one villain, and five borderers, and two acres of wood, and twenty acres of pasture: formerly it was worth 20 shillings, now 15 shillings.

The same holds Wadefeste; Siuuard held it in the time of King Edward, and it was taxed for one virgate of land and half, nevertheless there is one hide: the arable land is six carucates: there are three ploughs, and three bond servants, with one villain, and five borderers, and fifteen acres of wood, and one hundred acres of pasture: formerly it was worth 20 shillings, and so now.

The same holds Torne; Vluric held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one virgate of land: the arable land is one carucate: there are three borderers, with one bond servant, and twenty acres of pasture: formerly it was worth 2 shillings, and so now.

Hamelin holds of the Earl, Recharedoc; Goduin held it in the time of King Edward, and it was taxed for one hide, nevertheless there are two hides: the arable land is fifteen carucates: there are four ploughs and half, and six bond servants, and seven villains, and sixteen borderers, and six acres of wood; pasture three miles long and two miles wide: formerly it was worth 60 shillings, now 40 shillings.

The same holds Trewollen, Brictric held it in the time of King Edward, and it was taxed for one field (ager): the arable land is two carucates: there is one plough, and two bond servants, with one villain, and two borderers, and ten acres of pasture: formerly it was worth 5 shillings, now 3 shillings.

The same holds Treloen; Eduui held it it in the time of King Edward, and it was taxed for one field (ager): the arable land is two carucates: there is half a plough, and two bond servants, and ten acres of wood and ten acres of pasture: formerly it was worth 5 shillings, now 3 shillings.

The same holds Tregamelin; Eduui held it in the time of King Edward, and it was taxed for one field (ager): the arable land is two carucates: there is one plough, and two borderers, with one bond servant, and ten acres of pasture: formerly it was worth 5 shillings, and so now.

The same holds Tredhac; Aluuin held it in the time of King Edward, and it was taxed for one virgate of land: the arable land is two carucates: there is one plough and half, with one bond servant, and one villain, and seven borderers, and twenty acres of pasture: formerly it was worth 15 shillings, and now 10 shillings.

The same holds Dovenot; Brictric held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is one carucate: there is half a plough, with one bond servant, and two borderers, and five acres of wood, and forty acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

Hamelin holds of the Earl, Penpil; Brictric held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is three carucates: there is one plough, and two bond servants, and four borderers, and two acres of wood, and sixty acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

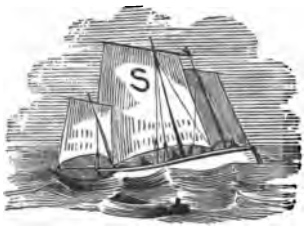
The same holds Tremodret; Goduin held it in the time of King Edward, and it was taxed for one hide, nevertheless there is one hide and half: the arable land is fifteen carucates: there are five ploughs, and seven bond servants.

On the Habits and Structure of the Great Bustard (Otis tarda *of Linnæus.)*

By WILLIAM YARRELL, Esq.,

V.P. & Treas. Linn. Soc., &c.

Published in the Linnean Society's Report for 1853, *and communicated to E. H. Rodd, Esq., by the Author.*



SOME kind friends having supplied me with various particulars relating to the habits of the Great Bustard (*Otis tarda* of Linnæus), most of which, as far as I am aware, have not been made public, I have endeavoured to put these materials together, in the belief that they might be found sufficiently interesting to be communicated at a meeting of the Linnean Society; the great scarcity, or rather, the now rare occurrence of the bird in this country, affording but few opportunities for observation.

The first communication came from C. A. Nicholson, Esq., of Balrath Kells, in the county of Meath, and was as follows:—

"You will perhaps be interested by the following few remarks on the habits of the Great Bustard, as observed by me in the neighbourhood of Seville, where they exist in large numbers.

"The males begin to arrive in the cultivated part of the country at the beginning of February; they come in flocks, varying from seven to fifty-three, the smallest and largest numbers I have seen together at that season of the year. The old birds always go together; those of a year old, which are much smaller, never mix with them. The young birds have neither beard nor pouch.

"The females do not arrive till the beginning of April, and come singly, or at most in pairs; as soon as they arrive the flocks

of males begin to break up, and after about three weeks you seldom meet more than three or four old males together, they being very frequently to be met with singly. At this time, on a fine day, they spread their tails like Turkey cocks, drooping their wings and expanding their pouches. Being perfectly white under the tail, they can be seen at a great distance while in this attitude; I have however, never seen a female near a cock, as apparently they live quite separate. During the month of May the cocks entirely disappear from the cultivated lands, leaving the hens behind them; they, I have every reason to believe, go down to the extensive grass marshes which stretch along the banks of the Guadalquiver. The young bustards are hatched in the large corn plains about Seville, and are able to take care of themselves when the corn is cut in July. At the end of that month, when all the corn is cut and no cover remains, the young birds and hens follow the cocks to the *marisma,* as they call these great marshes in Spain.

"The birds are very difficult to shoot, and many a long day I have spent without any success in hunting them about. The only chance is, to hide in a ravine or ditch, and send men who know the country round the birds to try and drive them over you. They sometimes succeed in this, but not very often. The heaviest bird I shot weighed 28 lbs.; this was before the hens came, which may perhaps account for this bird being two pounds heavier than any I shot afterwards. The largest bird, from tip to tip of wing, measured 7 feet 3 inches; this bird weighed 26 lbs. The 28 lbs. bird measured but 7 feet 1 inch.

"The birds of a year old weigh from 8 to 10 lbs., and are much the best to eat. I did not shoot a hen.

"All the birds I shot had their stomachs perfectly crammed with barley, both stalks and ears, the leaves of a large-leaved green weed, and a kind of black beetle. The pouch is surrounded by a layer of fat fully an inch thick. I may add that the bustards when flushed generally fly two miles or more, sometimes at least a hundred yards high. They never try to run; one that I had winged making the most awkward attempt possible to get away

from me, and though a young bird, showing much more disposition to fight than to get away by running. They fly with a regular flap of the wings, and much faster than they appear to go. I cannot imagine greyhounds being able to catch bustards, though there seems to be good authority for believing they did. There were a great many Little Bustards about also, but I never followed them, as I liked the large ones better."

To my friend John Wolley, Jun., a good ornithologist, who had been in Spain and North Africa, I wrote in reference to the Great Bustard, and was immediately favoured with the following answer:—

"My very little acquaintance with North Africa does not extend beyond the neighbourhood of Tangier, and there I did not see the Great Bustard, nor have I received its eggs from that quarter in the several packets which have been forwarded to me; but this proves nothing; it only renders it probable that this bird is not common in the immediate vicinity of that town.

"Of Spain I have almost equally little to say. One day, about the month of September, going up the Guadalquiver in a steamboat to Seville, I saw several flocks of the Great Bustard at no great distance from the river banks, on the level, and at that time of the year burnt up, plains which extend, almost without trees or enclosure, on each side of the Guadalquiver. These flocks consisted, as I remember, of four or five birds each; and from the deck of the vessel, which was almost on a level with the land, they appeared to be walking in file, some with their heads down, and reminding one of Gilbert White's note,—'Bustards upon the downs look like deer in the distance.' This appearance of walking in a row was probably deceptive. There was nothing in their manner to give the impression that they were timid, or very cautious, but one at least of a party frequently had its head raised as the steamer passed at a few hundred yards' distance, and with the help of my glass I thought this was generally a cock bird. On one occasion, as the boat came suddenly round a corner, several of them rose together from the edge of the water, springing hastily to the height of forty or fifty feet, nearly perpendicularly,

partly perhaps to clear the bank, and then turning suddenly and somewhat clumsily, and after a few more not rapid strokes, sailing along with the arched form of wing so general in game birds.

"I have now told you all I know about the Great Bustard in Spain. I wish I had more to say about it. I was told that the Spanish name was *Abutarda,* which is, I should imagine, connected in some way with the specific name '*tarda,*' for the bird can hardly be called 'slow,' but I do not know who gave it its scientific appellation. On the occasion I have referred to, a Spaniard on board the steamer told me that two or three months earlier in the year was the time for shooting the bird, and that then they were not difficult to approach with the assistance of cattle or carts, if I remember right. This would of course be in the breeding season."

My next communication was received from John Britton, Esq., so favourably known for the great extent of his interesting labours. It is copied from a letter in his possession, with permission to use it, and refers to Salisbury plain:—

"A man, about 4 o'clock of a fine morning in June, 1801, was coming on horseback from Tinhead to Tilshead. While at, or near, an enclosure called Asking's Penning, one mile from the village of Tilshead, he saw over his head, about sixty yards high as near as he could estimate, a large bird, which afterwards proved to be a Bustard. The bird alighted on the ground immediately before the horse, which it indicated a disposition to attack, and in fact very soon began the onset. The man alighted, and getting hold of the bird endeavoured to secure it; and after struggling with it nearly an hour he succeeded, and brought it to Mr. J. Bartley of Tilshead, to whose house he was going. Not knowing the value of such a bird, he offered it to Mr. Bartley as a present; but Mr. Bartley declined to accept it as such, though he much wished to have it, and after repeated solicitations prevailed on the man to receive for it a small sum, with which he was perfectly satisfied. During the first week that Mr. Bartley had this bird in his possession it was not known to eat anything; however, at length it became very tame, and would at last receive

its food from its patron's hands, but still continued shy in the presence of strangers. Its principal food was birds, chiefly sparrows, which it swallowed whole in the feathers with a great deal of avidity. The flowers of charlock and the leaves of rape formed also other parts of its food. Mice it would likewise eat, and in short almost any other animal substance. The food on passing into the stomach was observed to go round the back part of the neck.

"Mr. Bartley is of opinion that the idea of the Bustard's drinking is erroneous; in support of which he says, that during the time this Bustard was in his possession, which was from June till the August following, it had not a drop of water given it, after two or three weeks at first. This fact he considers as a proof that the generally received opinion of a Bustard's drinking is untrue.

"This bird was judged to weigh upwards of 20 lbs., and to measure between the extremities of its wings when extended about 5 feet, and its height was about 3½ feet. Its plumage was beautiful; and from its gait, which was extremely majestic, a spectator would be led to infer that it was sensible of its own superiority over others of the feathered tribe.

"In August Mr. Bartley sold this noble bird to Lord Temple for the sum of thirty guineas.

"The Bustard inhabits the extensive downs of Salisbury Plain; but its race is now almost extirpated. It is thought that not more than three or four are now remaining. Some time in the last summer (viz. 1801), while Mr. Bartley had this bird in his possession, a nest, supposed to belong to this bird, or at least to his mate, for Mr. Bartley's bird was judged to be a male, was found in a wheat-field on Market Lavington Down. It contained two eggs; they sometimes lay three, though very seldom; they are about the size of those of a goose, of a pale olive-brown, with small spots of a darker hue. The nest was made upon the ground, by scratching a hole in the earth, and lined with a little grass. The eggs were rotten, and had probably undergone a period of incubation.

"An instance of a Bustard attacking a human being, or even a

brute animal, of any considerable size, was, I believe, never before heard of; and that two instances of this kind should occur so nearly together may be considered very remarkable. About a fortnight subsequent to the taking of this bird, Mr. Grant, a respectable farmer of Tilshead, was returning from Warminster Market, and near Tilshead Lodge, which is something more than half a mile from the village, was attacked in a similar manner, by, as it is thought, the mate of the same bird. Mr. Grant's horse being rather high-mettled, took fright, became unmanageable and ran off, and consequently Mr. Grant was compelled to abandon his design of endeavouring to capture the bird."

From J. H. Gurney, Esq., of Norwich, I received a communication to the following effect:—

"As far as I can learn, the last Bustard killed in Norfolk was a female, which was shot at Lexham near Swaffham, towards the end of the year 1838. The small flock, of which this bird was one, had for some years previously consisted of females only, the eggs of which were frequently picked up, having been dropped about at random in consequence of the absence of male birds, the latter having become extinct at an earlier date.

"Before horse-hoeing was practised, the large wheat-fields of West Norfolk were often left unhoed, and the Bustards were able to nest in them undisturbed; but horse-hoeing rapidly improved the farming and destroyed the nesting of the Bustard."

My worthy friend Frederick J. Nash, Esq., of Bishops-Stortford, has several times told me, that when he was a young man, and then taking the field as a sportsman, he once saw nine flights of Bustards in one day, not far from Thetford in Norfolk. Some of these birds were probably seen more than once, but at that time, about the beginning of the present century, the country between Thetford and Brandon, and from thence southward to Mildenhall, was considered to be the head-quarters of the Great Bustard in the counties of Norfolk and Suffolk.

Gilbert White of Selborne, in his Diary, mentions, under the date of 17th November, 1782, "That being at a lone farmhouse on the downs between Whorwell and Winchester, the carter told

him that about twelve years before he had seen a flock of eighteen Bustards at one time on that farm."

Since the publication of the second edition of the 'History of British Birds,' I have only noticed three instances of the occurrence of this species. One, believed by its size to be a female, was seen on Salisbury Plain by Mr. G. R. Waterhouse of the British Museum, in the month of August, 1849, when returning to Salisbury with a party of friends from a visit to Stonehenge. Mr. Waterhouse is well known as an excellent naturalist, and the bird was seen several times on the wing by the party during an interval of eight or ten minutes. The subject is recorded in the volume of the 'Zoologist' for 1849, at page 2590.

The second bird, also a female, was shot in January, 1850, at Lydd, in Romney Marsh. This specimen is in the possession of Dr. Plomley, who recorded the circumstance in the 'Zoologist' for the year 1850, at page 2700.

The third was shot on the 31st December, 1851, in Devonshire. This specimen was preserved by Mr. Drax, and is now in the possession of J. G. Newton, Esq., of Millaton Bridestow, as recorded in the 'Naturalist' for 1852, page 33.

I had long wished to have an opportunity of examining the body of a male Bustard to inspect the gular pouch described by Daines Barrington, in his 'Miscellanies,' 1781, and by Edwards in his 'Gleanings in Natural History,' 1811, and from thence copied by Bewick and myself, but it was not till lately that an opportunity offered. About four years ago the Zoological Society obtained by purchase six or seven young Bustards from Germany. One of these birds, a male, died within a year: the body was examined by Mr. Mitchell and myself, but no gular pouch was found. This we then attributed to the youth of the bird. During the past summer of 1852 one of the males of these birds was frequently observed courting a female. His appearance at such a time was singular: the wings are lowered to the ground, and while covering the sides, the most anterior parts of both wings are brought round in front, so that the bird appears to be surrounded by a circle of his largest wing-feathers: the head and neck are passed backward,

and so depressed that the occipital portion of the head touches his back, and in this attitude he struts around his favourite. No inflation of the neck was observed. The females are timid and rather shy. Constant exposure to numerous visitors at the Gardens, with the want of sufficient space for seclusion, probably interfered, as no eggs were produced.

In the month of December last this male bustard, believed to be four years old, unfortunately died, and Mr. Mitchell very kindly allowed me to examine this adult bird.

To give an indication of what I expected to find, I may first quote the words in Edwards's 'Gleanings':—

"A remarkable anatomical peculiarity in the male of the Great Bustard, first discovered by Dr. James Douglas of the College of Physicians in London.

"It is a pouch or bag to hold fresh water, which supplies the bird in dry places when distant from waters: the entrance into it is between the under side of the tongue and the lower mandible of the bill. I poured into this bag, before the head was taken off, full seven wine pints, before it ran over. This bag is wanting in the hen."

My examination of the mature male Bustard sent to me from the Zoological Society's Gardens was confined to the neck only. I very carefully divided the skin, in a straight line from the union of the two branches of the lower mandible to the angle of the furcular bone or merrythought. On separating the edge of this skin on each side to the right and left, a thin delicate transparent membrane was seen covering, and firmly attached to, the anterior surface of the trachea or windpipe, which lies close to the inner surface of the common skin. Separating the skin still wider, there was on each side of the trachea an elongated narrow column of membrane investing and attached to the blood-vessels and ordinary glands of the neck, and extended downwards was attached to the lateral branch of the furcula on its own side. The œsophagus inclines to the right side of the neck in its passage downward. There was no opening under the tongue, and I failed in various attempts to distend any part of the membranes below, either by fluid or by air.

I was disappointed, and began to doubt the accuracy of my own investigation, but on turning to the volume containing a translation of the anatomical descriptions of the many animals dissected by the Royal Academy of Sciences at Paris, published here by an order of the Council of the Royal Society of London, 1702, I found that although the dissections of six Great Bustards, *and all of them males*, were therein detailed, beginning at page 197, there was no mention of a gular pouch, and the following extracts are in accordance with the observations on the soft parts already described:—"The rings of the *Aspera arteria* (windpipe) were entire. In some of the subjects there was on each side a caruncle or red gland, immediately fastened to the *Aspera arteria* and to the carotids. In the palate and lower part of the beak there was under the membrane which covers these parts, several glandular bodies which did open into the cavity of the mouth by several very visible tubes."

Cuvier, in his 'Leçons d'Anatomie Comparée,' 1799, dwells at some length on the blood-vessels, glands, and cellular tissue of the neck in birds, but he does not refer to any peculiarity in the neck of the Great Bustard.

Unwilling, however, to offer my statement to the notice of the Linnean Society without consulting the best living authority in this country, namely Professor Owen, I mentioned the subject to him, and had the satisfaction to find that Mr. Owen agreed with me entirely—that there is in the Great Bustard neither an orifice under the tongue, nor a gular pouch: and he had the kindness to send me a written note in confirmation. "The following was the result of my dissection of a full-grown Bustard, with the view of obtaining a preparation of the alleged gular pouch for the Physiological Series:—No. 772 Q. The head of a Bustard, *Otis tarda*, with the mouth and fauces exposed, showing the glandular orifices between the rami of the lower jaw, the tongue, glottis, internal nostril and Eustachian orifice. There is no trace of a gular pouch." The preparation has this description in the Museum Gallery Catalogue.

I am therefore disposed to consider that Dr. Douglas was

mistaken as to the species of bird examined; and that the summer seasonal enlargement of the glands and cellular structure in the neck of the Great Bustard, accompanied as it is by the assumption of certain elongated feathers called the beard, and a stripe of naked blue skin on each side of the neck, is analogous to the excess of colour observed on the naked parts of the head and neck in our Turkey cock in spring, and to the increase in the size of the glands of the neck seen in the males of Deer during their rutting time.

List of Cornish Shells, discovered in Mount's-Bay during the past year (1853).

Arranged in their natural order, and named according to "British Mollusca," by Messrs. FORBES and HANLEY.

HIATELLA.
Hiatella rugosa

CORBULA.
Corbula nucleus

LYONSIA.
Lyonsia Norwegica

SOLEN.
Solen marginatus
pellucidus

PSAMMOBIA.
Psammobia costulata
ferroensis
tellinella

TELLINA.
Tellina crassa
donacina
fabula
pygmæa

SYNDOSMYA
Syndosmya prismatica

SCROBICULARIA.
Scrobicularia piperata

DONAX.
Donax politus
trunculus

ERVILIA.
Ervilia castanea

MACTRA.
Mactra elliptica
helvacea
solida—valves

LUTRARIA.
Lutraria elliptica

TAPES.
Tapes virginea

CYTHEREA.
Cytherea Chione

VENUS.
Venus reflexa, var.
fasciata
Gallina
ovata

ARTEMIS.
Artemis exoleta
lincta
Lucinopsis undata

CIRCE.
Circe minima

ASTARTE.
Astarte triangularis

CARDIUM.
Cardium edule
pygmæum

LUCINA.
Lucina borealis
ferruginosa
flexuosa

DIPLODONTA.
Diplodonta rotundata.

MONTACUTA.
Montacuta bidendata
ferruginosa

TURTONIA.
Turtonia purpurea

KELLIA.
Kellia suborbicularis

PORONIA.
Poronia rubra

LEPTON.
Lepton squamosum

MYTILUS.
Mytilus edulis.

MODIOLA.
Modiola tulipa

CRENELLA.
Crenella costulata
discrepans
discors
rhombea

NUCULA.
Nucula nitida
nucleus
radiata

PECTUNCULUS.
Pectunculus glycimeris.

PINNA.
Pinna pectinata

LIMA.
Lima Loscombii

PECTEN.
Pecten opercularis
pusio
lævis
tigrinus

OSTREA.
Ostrea edulis.

ANOMIA.
Anomia ephippium

SPIRIALIS.
Spirialis Jeffreysii

CHITON.
Chiton asellus
fascicularis
ruber

PATELLA.
Patella athletica
pellucida
vulgata, var.

ACMEA.
Acmea virginea

DENTALIUM.
Dentalium entalis

PILEOPSIS.
Pileopsis Hungaricus

CALYPTREA.
Calyptrea sinensis

FISSURELLA.
Fissurella reticulata

EMARGINULA.
Emarginula reticulata

TROCHUS.
Trochus cinerarius
lineatus
Lysonii, var.
magus
Montagui
tumidus
undulatus
umbilicatus
zizyphinus

PHASIENELLA.
Phasienella pullus

IANTHINA.
Ianthina communis

LITTORINA.
Littorina littoralis
neritoides
rudis

LACUNA.
Lacuna crassior
puteolus
vincta

RISSOA.
Rissoa Beanii
crenatula
cingillus
rupestris, var.
fulgida
interrupta
fasciata, var.
inconspicua
punctura
parva
Barlica rubra
semistriata
striata
striatula

JEFFREYSIA.
Jeffreysia diaphana

SKENEA.
Skenea divisa
nitidissima
planorbis

CERITHIUM.
Cerithium adversum
reticulatum

ACLIS.
Aclis unica

EULIMA.
Eulima bilineata
polita

CHEMNITZIA.
Chemnitzia elegantissima
fenestrata
indistincta

ODOSTOMIA.
Odostomia acuta
conoidea
cylindrica
decussata
eulimoides
excavata
insculpta
interstincta
pallida
plicata
rissoides
turrita, var.
unidentula

NATICA.
Natica Alderi

CERITHIOPSIS.
Cerithiopsis tuberculare

MUREX.
Murex erinaceus

LACHESIS.
Lachesis minima

PURPURA.
Purpura lapillus

NASSA.
Nassa pygmæa
reticulata

BUCCINUM.
Buccinum undatum

MANGELIA.
Mangelia linearis.
nebula
purpurea

CYPRÆA.
Cypræa Europæa

OVULA.
Ovula patula

MARGINELLA.
Marginella lævis

CYLICHNA.
Cylichna cylindracea.
mammillata
obtusa
truncata

TORNATELLA.
Tornatella fasciata

PHILINE.
Philine aperta
catena
punctata
scabra

APLYSIA.
Aplysia hybrida

LAND AND FRESH-WATER SPECIES.

CONOVULUS.
Conovulus albus

CARYCHIUM.
Carychium minimum

PLANORBIS.
Planorbis albus
imbricatus
vortex

ANCYLUS.
Ancylus fluviatilis

LIMNÆUS.
Limnæus glaber
pereger
truncatulus

SUCCINEA.
Succinea putris

BALEA.
Balea perversa

CLAUSILIA.
Clausilia nigricans

PUPA.
Pupa marginata
umbilicata

ZONITES.
Zonites lucidus
umbilicatus

HELIX.
Helix aspersa
caperata
nemoralis
pisana
pulchella
revelata
rufescens
sericea
virgata

LIMAX.
Limax brunneus.

Notes on the Metamorphoses of the Common Crab (C. Pagurus).

By R. Q. COUCH, Esq., M.R.C.S.,

ONE OF THE SECRETARIES.

IN 1834 and 1835, Mr. F.V. Thompson, Deputy Inspector General of Hospitals, first announced his discovery that very many of the Decapod Crustaceans underwent such a remarkable series of changes, during their passage from the young to the adult state, that he denominated them a metamorphosis. These views, first published in his Zoological Researches, and subsequently in the Transactions of the Royal Society for 1835, excited much interest and a great deal of controversy at the time. Many naturalists altogether denied the accuracy of his observations, and suggested that he had been deceived by the accidental intrusion of other creatures, which he mistook for the young of the crab. Many other suggestions were made, to account for the differences of opinion between Mr. Thompson and his critics.

Several years ago the subject was taken up in Cornwall, and the results were given in the Transactions of the Royal Cornwall Polytechnic Society. In those Papers it was shown that all the Cornish species that could be procured, exhibited, in their embryo and young state, characteristics so dissimilar in shape and habit from the adult, that no doubt could be entertained but that Mr. Thompson was correct, at least as to the early forms. These Papers I believe greatly assisted in setting that part of the question at rest. Afterwards, while the early changes were allowed, it was argued that the double changes, subsequently described by

Mr. Thompson were altogether wrong: it was stated that Mr. Thompson himself had never seen the changes which he described; that they were to be taken as constructive opinions established on very slender data: thus doubt was again thrown over the whole matter. It is very difficult to conduct the experiments necessary to determine this very interesting point, because the little creatures are so delicate that they soon die.

In August, 1852, I obtained a female of the common crab, laden with spawn just ready for casting. Two days after its captivity the filtered sea-water in which it was placed was thronged with thousands of minute creatures, swimming most actively about. The early forms differ: the first is destitute of the dorsal spine, and very inactive, but soon after escaping from the egg they assume the extraordinary figure represented in Plate I., fig. 1. The eye is large and sessile, with lozenge-shaped markings, and is situated in a festoon on the anterior and inferior portion of the shield: from the back ascends the slender spine, longer than the animal; and a similar one descends from the anterior portion of the lower margin. The legs are formed entirely for swimming, and are tipped with long bristles. There are small spines laterally on the shield. The tail is long, stout, composed of six annulations, beside the terminal flap, which spreads somewhat fan-like, and is fringed with several long bristles or hairs. In about twenty-four days most of these had died, but several that were kept in separate vessels cast their shells, lying to do so on the gravel at the bottom of the vessel: some time previously to this they had been very inactive, and just before the shell was shed were altogether motionless. The shell is cast by the shield being lifted from the body;—the joint behind the shield and attached to the tail separates, the opening gets much larger, and through it the internal creature escapes, in a soft state, into the surrounding water. Many died in the act of performing this process, but some lived, and these were altogether altered in form and habit. In this condition many were killed, and it was only after a great many experiments that I at last was successful in rearing the young. In several that I was fortunate enough to preserve, the form, after

this exuviation, was altogether different from what it had previously been: the number of the legs had changed to five pairs,—four pairs simple, and the first large, long, and armed with nippers. The creature now, instead of being natatory, and swimming about from spot to spot, seemed to be altogether of a creeping character. The eyes were enormously large, but, instead of being sessile, were elevated on long and stout stalks: the tail was proportionably smaller, and assisted the creature in darting from point to point. The carapace, or shield, was widened, flattened, and the front prolonged horizontally forward into a spine, resembling the *Galathea*. It was altogether belonging to a new genus, *Megalope*. Having thus seen the early stages distinctly gone through, I became anxious for the life of the little creatures, that I might witness the only remaining change necessary to be examined. The necessity for witnessing these changes must be obvious, since by observation alone can we hope to convince those who resolutely hold out against conviction on this subject. It is not enough to see a specimen undergo a change, but it must be the very individual which has been the subject of observation from the beginning. In about twenty-eight days, with fine warm weather, and the glasses always in the sun, though sheltered from the direct rays, the creature again became inactive, and retired among the sand. Each was now carefully watched, and in about three days, making thirty-one, the shield or carapace was lifted, and the creature drew itself out in the manner before described, soft and inactive: in a day or two it began to crawl about. In the second stage the margin of the shield was waved in parts slightly, but in this, the third state, it was much more so. The little creature was now unlike any state previously seen, and was not at all like the adult: the lateral rim was indented, as in the adult, but, instead of the oval form, it was almost quadrangular: the sides, instead of being rounded off, as in the adult, were perpendicular, but the feet were much like the adult, and the eyes were smaller than in the *Megalope*, and all the organs about the mouth were more of the adult character than before. This quadrangular condition of the young I find is constant in all

crabs that I have yet examined: in kindred species, such as in the swimming crabs, it is impossible I believe to separate one species from another, they are all so much alike. In this stage of course they are very small, and undergo moultings every four or five weeks at first, but less frequently as they become older. During these moultings, each gradually assumes the adult markings and specific characters. It appears as if the whole were formed on a quadrangular plan, which in their moulting changes; certain parts becoming more or less developed, while others remain almost as before. In the crabs, the enlargement takes place laterally.

In drawing up these very short notes on so interesting a subject, it is not necessary to state all the difficulties that surround the investigation, or to say how many experiments were made which failed, almost as they were about to be accomplished; all that is necessary, is to state that the conditions necessary to make the investigation perfect and to render it worthy of acceptance have been fulfilled, and the result has been so entire a confirmation of the views of the late Mr. F. V. Thompson; that it may now be received as an established fact, that crabs undergo a double metamorphosis in passing from the young to the adult state.

PROCEEDINGS OF THE GENERAL MEETING

OF THE

Natural History and Antiquarian Society

OF PENZANCE,

HELD IN THE MUSEUM OF THE GEOLOGICAL SOCIETY,
FRIDAY, OCTOBER 27TH, 1854.

The President, JOSEPH CARNE, Esq., F.R.S., F.G.S., M.R.I.A., in the Chair.

The President announced that the last portion of Mr. J. Couch's Translation of part of Domesday Book had been received.—To this gentleman and Mr. T. Q. Couch the best thanks of the Meeting were given, and they were elected Corresponding Members.

It was also announced by the President that Mr. D. B. Bedford, the Treasurer had a balance in hand of £23.—It would be necessary to husband their funds, as they should require extra moneys to prepare their new Museum.

G. Smith, Esq., and the Rev. W. W. Wingfield were elected Members, and the following gentlemen were elected the Officers and Council for the ensuing year:—

President.
Joseph Carne, Esq., F.R.S.

Vice-Presidents.
Rev. H. Batten, M.A. | Richard Pearce, Esq.
J. S. Bedford, Esq.

Council.

Rev. M. N. Peters.	Samuel Higgs, Esq.	Edwd. Bolitho, Esq.
T. S. Bolitho, Esq.	J. J. A. Boase, Esq.	Edwin Ley, Esq.
R. Millett, Esq.	R. F. Bolitho, Esq.	

Treasurer.
D. B. Bedford, Esq.

Secretaries and Curators.
E. H. Rodd, Esq. | R. Q. Couch, Esq.

DONATIONS TO THE SOCIETY,

For 1854.

Globe Fish, from the East Indies. By Mr. P. Kessell, Quay.

Specimen of the Sun Fish. By Mr. C. Williams, Truro.

A Silver Three-penny-piece of George the Third. By Mr. E. Brokenshire, Truro.

Drawing of the Bucks Spinous Shark, and Twenty-two species of *Crustacea*. By R. Q. Couch, Esq.

PRESIDENT'S ADDRESS.

THE progress of Science of late years has borne some resemblance to that of locomotion, as if the human mind, as well as the body, had burst the trammels by which it was previously held. The result has been, that Science, like Commerce, now takes such large and rapid strides, that the investigations of every succeeding year surpass those of former years in the discovery of new objects, and may be expected more and more to surpass in the deeper and more accurate examination of objects already known.

In this progress, Natural History has largely participated, in almost all its departments. It is impossible, in a short introductory address, to allude, even in the slightest degree, to the numerous investigations which have been made in the last few years, and the many valuable results which have been obtained and communicated by naturalists in different quarters, by which many points, before full of doubt, have been decided, and many difficulties which previously existed have been cleared up. There are several questions, however, which still remain open and undecided, to one of which I would particularly allude, for a reason which will presently appear.

Great pains and perseverance have been bestowed by the most eminent naturalists in the investigation of that class of doubtful productions which appear to hover between the animal and vegetable kingdoms. The great outlines of those kingdoms are so well marked that a child may perceive them; but in many

cases the subjects of each so gradually approach and blend with each other, that the line of demarcation not only becomes obscure, but is frequently altogether lost. The qualities of motion, locomotion, and sensation, which belong to animals, and the rooted character, the shedding of leaves, and periodic changes of vegetables, have been found interchanging.

Many zoologists are of opinion that the possession of a nervous system is the great characteristic of an animal, but in many of the lower animals this cannot be discovered. In fact, in any line of distinction which the most acute philosopher might draw, there would be what I may call vibrations on each side, and frequent interchanges of the form of the one class, and the physiology of the other.

In the past year, two specimens of a very remarkable character have been dredged up in Mount's-bay, but to what class they belong it is impossible to say. They were both of a thick gelatinous consistency, and semi-transparent; in fact, they looked like semi-opaque glass; they weighed about two pounds: the surface was smooth, with elongated pedunculated sacks hanging irregularly around. On cutting through the mass, it was found to be solid throughout, with whitish-yellow spots scattered about it; and, on approaching the surface from the centre, these spots became larger, and formed, in fact, the pedunculated sacks: these are supposed to fall off, as portions of the peduncles remained behind. We must wait longer for a more particular report of these productions, for, although in addition to the observations of one of our secretaries here, they have been submitted to some of the highest authorities in Natural History, no one has yet arrived at any conclusions respecting them.

I must not trench on the report of the Council; I will therefore merely mention that, with reference to Botany, there is on the table a specimen which appears to illustrate what has been called the law of Morphology, as generally held by the Germans, and now received by many English naturalists, which teaches us that the spears of the thorn and pear, for instance, are but stunted branches, and that fruits and the petals of flowers are merely

modified leaves. The specimen before you is a rose, in which from the first flower a stem has grown up through the centre, at the tip of which another rose-bud appears. In Botany, also, I must mention the discovery in the past year, by our young friend Master Tracey Millett, of a fern, believed to be new to Cornwall.

In Ornithology, you will be informed of a bird added to our list in the past year, new, not only to Cornwall, but to Europe.

In Ichthyology there is reason to believe that a new species of shark has been obtained, and also a new mackerel: of the latter, our society has already added one to the list of species. I may here mention, on the authority of Mr. Yarrell, that the pilchard has lately been found on the coast of Algeria. Neither Cuvier nor any other writer describes it as an inhabitant of the Mediterranean.

Our society has generally been most fortunate in the discovery of *Crustaceans*, of which more will appear in the Report. One singular circumstance, however, I cannot omit: it refers to what is called Henslow's swimming crab, which was first discovered in 1817, and specimens of it have ever since been extremely rare; but in the present autumn it has appeared in large numbers, generally attached to the pilchard nets.

These cursory allusions will perhaps shew that the society has not been idle during the past year, although it will be readily acknowledged that their labours might have been "more abundant." There is one department in which we are particularly deficient—Entomology. I think our young friends may give us great assistance here, and if they will allow me to mention one branch for their pursuit in the coming year, I would suggest to them a collection of *beetles*.

In the department of Antiquities, I cannot speak of any discovery in the past year. It will be recollected that as the Inscribed Stone, in Madron, called the Mên-Scryfa, had fallen down, it was proposed to remove it to a situation in this town, but on further consideration, feeling that much of its interest depends on its associations, which would be broken by its removal, it is determined to set it up in its old situation.

That enterprising body, the Archæological Society, are actively continuing their researches, but it appears to me likely that their discoveries would be largely increased by the establishment of a Committee of the society in every extensive county in England.

REPORT

IN again coming before the annual meeting, the Council have great pleasure in announcing the continued efforts of the members of the society. The successful character of our exertions seems to arise from the circumstance that our objects are well marked out, and are confined, if not to our own district, at least to our county. The council are fully persuaded that the real value of our museum will depend more upon the collection illustrating our own shores, than on any exotic character that may be given to it. From this view, the council have encouraged the tendency exibited by the members to search well our own immediate neighbourhood.

ORNITHOLOGY.

The usual watch respecting the occurrence of rare birds has carefully been kept up, and many notes have been made respecting their migration, distribution, and habits. The Islands of Scilly have afforded us examples of the greatest rarity. Among the rarest however is the garrulous roller, which was captured in St. Just.

We have had two or three specimens of the little bustard, in addition to those mentioned last year. From Stilly we have received that rare bird, the American stint *(Tringa pusilla)*, the glossy ibis, and the short-toed lark. The American stint is new to the Cornish *Fauna*.

ICHTHYOLOGY.

The examination of the fish of our shores has been continued, and with success. The habits of the pilchard have been again carefully recorded; the experiences of one year, while they do not minutely agree with that of another, yet the variations are annually within very narrow bounds, but at the end of several years they are found to be somewhat remarkable. But these variations are in some measure accounted for by the nature of the tides at the precise time the fish approach our shores. The character of the spring and early summer also considerably influences the autumnal migrations. If the weather permits their keeping in deep water, their early congregation will take place; it is only when the migratory feeling is fully established that they approach the shores. Among the rare visitors to our coast, not yet recorded in our Transactions, is the spinous shark, a large figure of which has been presented to our society, and is now before you. This is an important addition to our list, as the sharks of that character are by no means clearly ascertained. It is therefore very desirable, not only to record, but describe and figure all such little known species. Another specimen of the fox shark, 12 feet long, was captured in Mount's-Bay during the last week of September; a figure, one-third the size of life, is now exhibited: this will also be described in our Reports. A specimen of the wolf fish has been captured at Looe; a figure of this extraordinary-looking fish is now on the table. To this list of rarities as visitors, and as additions to our *Fauna*, we have the pleasure to announce the capture of one that is quite new to science. In a former Report, we had the satisfaction of describing and figuring a new species of mackerel for the first time; we have to notice the capture of another new species of mackerel, which competent judges pronounce to be quite distinct from any hitherto known.

We hope at our next meeting to be able to lay before the meeting both a figure and description, which will be inserted in our Report.

CRUSTACEA.

Among the *Crustacea*, several of the rarer species have occurred. Henslow's swimming crab, which is generally a very rare species, has this year been in great abundance; and many specimens have been procured to add to our museum, when we can command space. Two new species of *Mysis* have been added to our *Fauna*, one of which will be laid before the society to-day. Several obscure points respecting the anatomy of these creatures have been cleared up, and the condition and form of the young have been ascertained.

BOTANY.

The council have reason to hope that the botanical researches of West Cornwall will be continued. Papers on little known portions of Botany are already printed in our Transactions, and the council have great pleasure in stating that these are constantly being rendered more perfect. There will be laid before you to-day a tolerably extensive list of the flowering plants of the district, all accurately ascertained, and an addition of ten species to our list of Ferns. The council have requested to be laid on the table a specimen of a rose, illustrative of what is termed the laws of Morphology, whereby one organ is transformed into another. According to this doctrine all organs of plants are merely modifications of one another. The flowers, with their petals, stamens, and pistils, are mere modified leaves, &c. In the specimen on the table, the centre of the rose has produced a continuation of the stem, which has terminated in a perfect bud. The council would draw the attention of the members to this case.

ANTIQUITIES.

In the Antiquarian department of our society the council have to report that efforts have been made to prevent the spoliation of any of our monuments; and agreements have been entered into to protect such as have, in any manner been displaced.

The council are very desirous of procuring succinct communications on the ancient customs and superstitions which at present exist among us; superstitious omens respecting the appearance or disappearance of birds, or anything connected with Natural History. The past year has been characterized by great exertion in the department of Natural History; and from our present arrangement, the council have every reason to expect that the same kind of energy will be continued through the next.

EDWARD HEARLE RODD,
RICHARD Q. COUCH, } *Secretaries.*

Oct. 27th, 1854.

List of Phænogamous Plants and Ferns of Western Penwith.

By JAMES BARCLAY MONTGOMERY, M.D.,

M.R.C.S., Eng.; L.R.C.S., Edin.

Anemone nemorosa
Ranunculus aquatilis
circinatus.—Trengwainton.
hederaceus
Ficaria
Flammula
acris
repens
bulbosus
parviflorus.—Lescudjack.
Caltha palustris.—Hayle.
Nymphæa alba
Papaver dubium
Rhœas
Chelidonium majus
Fumaria capreolata
officinalis
Cakile maritima
Coronopus didyma.— Marazion, [Paul, &c.
Ruellii
Capsella Bursa-pastoris
Teesdalia nudicaulis.—Newlyn.
Lepidium Smithii
Cochlearia officinalis
danica
Draba verna.—Marazion green.
Cardamine pratensis
hirsuta
b. sylvatica
Arabis hirsuta.—Phillack.
Barbarea vulgaris
stricta
Nasturtium officinale
terrestre.—Hayle.
Sisymbrium officinale
Glaucium luteum
Erysimum Alliaria
Matthiola sinuata.—Scilly.
Brassica oleracea.—Quay, Pen- [zance.
Napus
Sinapis nigra
muralis.— St. Ives. Sides of the railway.
Raphanus Rhaphanistrum
Reseda luteola
lutea
fruticulosa.–Marazion green.
Viola palustris
canina
tricolor
b. arvensis.—Land's-end.
lactea.—Trevayler.
Drosera rotundifolia
intermedia.—Sancreed, &c.
Polygala vulgaris
Elatine hexandra.— Chyanhâl moor.
Dianthus Armeria.—St. Ives.
Silene inflata
maritima
Anglica
Lychnis Flos-cuculi
diurna
vespertina
Agrostemma Githago
Moenchia erecta.— Road from Newlyn to Mousehole.
Sagina procumbens
nodosa.—Lands-end.
Spergula arvensis
Honckeneja peploides
Tamarix anglica

Spergularia marina
rubra
Arenaria serpyllifolia
trinervis
Stellaria media
holostea
graminea
uliginosa
Cerastium glomeratum
triviale
tetandrum
Linum angustifolium
catharticum
Radiola millegrana
Malva moschata. — Near Bone village.
sylvestris
rotundifolia.—Lamorna.
Lavatera arborea. — Newlyn to Mousehole.
Hypericum Androsæmum
perforatum
quadrangulum
humifusum
linariifolium.—Botallack.
pulchrum
elodes
montanum.—St. Ives.
Erodium maritimum
cicutarium
moschatum
Geranium molle
dissectum
columbinum
robertianum
Oxalis Acetosella
Spartium scoparium
Ulex Europæus
~~nanus~~ galii
Ononis arvensis
Anthyllis vulneraria
Medicago lupulina
maculata
Melilotus officinalis
Trigonella ornithopodioides.—Zennor; Marazion green.
Trifolium repens
subterraneum
Trifolium pratense
medium
scabrum.— Marazion green.
striatum
fragiferum.— Lariggan.
procumbens
minus
filiforme
Lotus corniculatus
major
angustissimus
hispidus.–Tol-pedn-Penwith.
Ornithopus perpusillus
Arthrolobium ebracteatum.—Scilly.
Vicia Cracca
sativa
b. angustifolia
sepium
Ervum hirsutum
tetraspermum
Lathyrus Aphaca.—Gulval.
pratensis
Prunus spinosa
b. institia
Cerasus
Spiræa Ulmaria
Geum urbanum
Agrimonia Eupatoria
Potentilla anserina
reptans
Tormentilla
Fragariastrum
Comarum palustre.—Chyanhâl.
Fragaria vesca
Rubus Idæus.—Trengwainton.
fruticosus
Rosa canina
arvensis
inodora
Poterium Sanguisorba
Alchemilla arvensis
Mespilus germanica (?) — Cliff, beyond Marazion.
Cratægus Oxyacantha
Pyrus Malus
Epilobium hirsutum.—Hayle.
parviflorum

Epilobium montanum
palustre
tetragonum
Circæa lutetiana
Myriophyllum spicatum
alterniflorum.–Trengwainton.
Callitriche verna
pedunculata *b.* sessilis
Lythrum Salicaria
hyssopifolium.—Ludgvan.
Peplis Portula
Montia fontana
Illecebrum verticillatum
Scleranthus annuus.—Scilly.
Polycarpon tetraphyllum.—Newlyn.
Ribes nigrum
rubrum
Grossularia } Not truly wild.
Sedum Telephium
Anglicum
Acre
reflexum
Sempervivum tectorum
Cotyledon umbilicus
Chrysosplenium oppositifolium
Hedera Helix
Hydrocotyle vulgaris
Sanicula Europæa
Eryngium maritimum
Conium maculatum
Smyrnium Olusatrum
Apium graveolens
Helosciadium nodiflorum
inundatum
Ægopodium Podagraria
Bunium flexuosum
Pimpinella Saxifraga
Sium angustifolium
Œnanthe crocata
Æthusa Cynapium
Fœniculum vulgare
Crithmum maritimum
Angelica sylvestris
Heracleum Sphondylium
Daucus Carota
maritimus
Torilis Anthriscus
nodosa
Scandix Pecten
Anthriscus sylvestris
Chærophyllum temulentum
Sambucus nigra
Lonicera Periclymenum
Rubia peregrina.–Road to Hayle.
Galium verum
palustre
saxatile
Mollugo
Aparine
Vaillantii.—Land's-end.
Sherardia arvensis
Asperula odorata.—Poltair.
Valeriana officinalis
Fedia olitoria
dentata
Dipsacus sylvestris.—Hayle.
Scabiosa succisa
Knautia arvensis
Helminthia echioides
Thrincia hirta
Hypochœris radicata
Sonchus arvensis
oleraceus
Crepis virens
Hieracium Pilosella
umbellatum
Taraxacum officinale
palustre
Cichorium Intybus
Arctium Lappa
Serratula tinctoria
Carduus nutans
tenuiflorus
lanceolatus
palustris
Carlina vulgaris
Centaurea nigra
Cyanus
Scabiosa
Bidens cernua.–Lariggan marsh.
Eupatorium cannabinum
Tanacetum vulgare
Artemisia vulgaris

Artemisia Absinthium.—Scilly.
Gnaphalium dioicum.— Connor
uliginosum [downs.
Filago germanica
Tussilago Farfara
Aster tripolium
Solidago Virgaurea
Senecio vulgaris
sylvaticus
Jacobæa
aquaticus
Inula Hellenium.—Morvah.
Conyza.—Hayle.
crithmoides.—Botallack.
Pulicaria dysenterica
vulgaris
Bellis perennis
Chrysanthemum segetum
Leucanthemum
Pyrethrum inodorum
Matricaria Chamomilla
Anthemis nobilis
Cotula
Achillea Ptarmica
Millefolium
Wahlenbergia hederacea
Jasione montana
Erica tetralix
cinerea
Calluna vulgaris
Vaccinium Myrtillus
Ilex Aquifolium
Ligustrum vulgare
Fraxinus excelsior
Gentiana campestris.— Gurnet's head and Connor downs.
Cicendia filiformis
Erythræa Centaurium
pulchella
latifolia
Menyanthes trifoliata
Convolvulus arvensis
sepium
Soldanella
Cuscuta Epithymum
Hyosyamus niger
Solanum nigrum
Dulcamara
Petasites vulgaris
Verbascum Thapsus
nigrum.—Marazion.
Veronica arvensus
serpyllifolia
Beccabunga
officinalis
scutellata
montana.—Love lane.
Chamædrys
hederifolia
agrestis
polita
Buxbaumii
Bartsia viscosa.—Kenegie.
Odontites
Euphrasia officinalis
Rhinanthus Crista-galli
Pedicularis palustris
sylvatica
Scrophularia nodosa
aquatica
Scorodonia
Digitalis purpurea
b. alba.—Not uncommon.
Antirrhinum majus
Orontium.—Land's-end.
Linaria Elatine
spurium
vulgaris
Sibthorpia Europæa
Orobanche major
barbatum.—St. Ives
elatior.—Scilly.
Verbena officinalis
Salvia verbenaca.—Hayle.
Lycopus Europæus
Mentha rotundifolia.- Trembath,
sylvestris [&c.
sativa
arvensis
Pulegium
viridis.—Newlyn cliff.
Thymus Serpyllum
Origanum vulgare
Calamintha Nepeta
Teucrium Scorodonia
Chamædrys.—Road to Hayle, St. Just, &c.

Ajuga reptans
Ballota nigra
Lamium album
purpureum
b. incisum
amplexicaule
Galeopsis Tetrahit
Stachys Betonica
palustris
b. ambigua
sylvatica
arvensis
Glechoma hederacea
Prunella vulgaris
Scutellaria galericulata.—Rare.
minor
Myosotis palustris
arvensis
collina
versicolor
Lithospermum arvense
Symphytum officinalis.–St. Ives.
Borago officinalis.—The Mount.
Anchusa sempervirens.—Chyandour.
Cynoglossum officinale.—
Echium vulgare [Lamorna.
Pinguicula lusitanica
Utricularia vulgaris
Primula vulgaris
veris.—Hayle, &c.
Lysimachia nemorum
Anagallis arvensis
b. cærulea
tenella
Centunculus minimus.–Bologas.
Samolus Valerandi
Glaux maritima.—Hayle.
Armeria maritima
Statice Dodartii.—St. Ives.
Plantago major
lanceolata
maritima
Coronopus
Littorella lacustris.– Ding Dong, [&c.
Chenopodium olidum
murale
Chenopodium ficifolium
album
Bonus-Henricus
Atriplex Babingtonii
hastata
patula
Beta maritima
Salsola Kali.—Hayle.
Schoberia maritima.— Hayle.
Salicornia herbacea.—Hayle.
Polygonum lapathifolium
Persicaria
Hydropiper
aviculare
Raii
Convolvulus
Rumex Hydrolapathum
crispus
obtusifolius
sanguineus
Acetosa
Acetosella
Euphorbia Peplis.— Marazion green, again found by Mr. Bennett; Scilly.
helioscopia
Paralias.—Hayle.
Portlandica.—Hayle.
Peplis
Mercurialis perennis
Urtica urens
dioica
Parietaria officinalis
Humulus Lupulus
Ulmus montana
suberosa
Quercus Robur
Corylus Avellana
Alnus glutinosa
Betula alba
Populus tremula
Salix alba
triandra
repens
Myrica Gale.—Marazion marsh.
Orchis Morio.—The Mount.
pyramidalis.—St. Ives.

Lycopsis arvensis

Orchis mascula
maculata
Spiranthes autumnalis.—Marazion green.
Iris fœtidissima.— Common in Pseudacorus [Lelant.
Narcissus Pseudo-narcissus
biflorus
Scilla verna
autumnalis.—Scilly.
Hyacinthus nonscriptus
Ruscus aculeatus
Tamus communis
Alisma plantago
ranunculoides. — Marazion marsh, Chyanhâl, &c.
Triglochin maritimum
Butomus umbellatus.—Scilly.
Potamogeton natans
Lemna minor
Sparganium simplex.-Chyanhâl.
ramosum
Typha latifolia.—Trengwainton.
Juncus conglomeratus
effusus
maritimus.—Hayle.
acutiflorus
lamprocarpus
supinus
cœnosus
bufonius
Luzula sylvatica.—Carn Galva.
campestris
Narthecium ossifragum
Schœnus nigricans
Rhyncospora alba.—Lower Tremenheere.
Scirpus lacustris *b.* glaucus
setaceus
Savii
maritimus.—Hayle.
palustris
multicaulis
fluitans
Eriophorum angustifolium
Carex pulicaris
stellulata
ovalis
Carex arenaria
muricata
divulsa
vulpina
paniculata.-Marazion marsh.
vulgaris
stricta
flava
b. Œderi
extensa.—Coast.
binervis
lævigata
panicea
glauca
præcox
pilulifera
Cynodon dactylon. — Marazion green.
Phalaris arundinacea
Anthoxanthum odoratum
Phleum pratense
arenarium
Alopecurus geniculatus
agrestis
Agrostis setacea
canina
vulgaris
alba
Gastridium lendigerum.-Connor downs.
Ammophila arundinacea
Arundo Phragmites
Aira cæspitosa
caryophyllea
præcox
Avena fatua
strigosa
Arrhenatherum avenaceum
Holcus lanatus
mollis
Triodia decumbens
Kœleria cristata
Molinia cærulea
Glyceria fluitans
rigida
loliacea
Poa annua
pratensis
trivialis
Briza minor

Zostera marina
Arum maculatum

Dactylus glomerata
Festuca pseudo-myurus
ovina
duriuscula
pratensis
Bromus sterilis
secalinus
mollis
Brachypodium sylvaticum
Triticum caninum
repens
junceum
Lolium perenne
Nardus stricta
Rottbollia incurvata.—Hayle.
Polypodium vulgare
Phægopteris.—Carn Galva.
Aspidium aculeatum.—
Rosemorran.
Lastrea Oreopteris.—
Filix-mas [Trengwainton.
spinulosa
dilatata
fœnisecii

Athyrium Filix-fœmina
Asplenium Trichomanes
marinum
lanceolatum
Adiantum-nigrum
Ruta-muraria.— Wall at
Clowance.
Scolopendrium vulgare
Blechnum boreale
Pteris aquilina
Adiantum Capillus-Veneris.—
St. Ives.
Hymenophyllum Tunbridgense.-
Wilsoni [Carn Galva.
Osmunda regalis
Botrychium Lunaria.—Scilly.
Ophioglossum vulgatum.—
Phillack and Scilly.
Pilularia globulifera
Lycopodium inundatum.—
Trengwainton.
Equisetum arvense
palustre
limosum

Naturalized in the District.

Clematis vitalba—Alverton.
Helleborus viridis.—Tolcarne.
Berberis vulgaris
Aconitum Napellus
Koniga maritima.—Newlyn.
Geranium striatum.—
Castle Horneck.
Oxalis stricta.—Love lane.
Acer pseudoplatanus
Euonymus Europœus
Viscum album.—St. Erth.
Vinca major
minor.—Love lane.
Pyrus aucuparia
Linaria Cymbalaria.—
Several places.

Fagus sylvatica
Teucerium Chamædrys.—
Hayle road.
Fœniculum vulgare.—
Western green.
Ornithogalum umbellatum.—
Alverton and Marazion.
Galanthus nivalis.—Newlyn.
Leucojum æstivum.—Trevethow.
Saponaria officinalis.—St. Levan.
Iris tuberosa
Centranthus ruber
Linum usitatissimum
Cheiranthus Cheiri.—
Cliffs at Newlyn.

Plants of rarity found beyond the District.

Ranunculus Lingua.–Gunwalloe.
hirsutus.— The Lizard.
Raphanus maritimus.— ,,
Arenaria verna.— ,,
Geranium sanguineum.— ,,
Trifolium Bocconi.— ,,
Molinieri.— ,,
strictum.— ,,
Herniaria glabra.— ,,
ciliata.— ,,
Sison Amomum.— ,,
Hypocrepis maculata.— ,,
Orobanche rubra.— ,,
Salvia clandestina.— ,,
Scilla autumnalis.— ,,
Allium Schœnoprasum ,,
Ursinum.—Ennis.
Ampeloprasum.—Poltesco.
Asparagus officinalis.–Kynance.
Vicia lutea.—Coverack.
Spiræa filipendula.—Kynance.
Sanguisorba officinalis.—
Goonhilly downs.
Corrigiola littoralis.—Looe pool,
Helston.
Ruppia maritima.— ,,
Chenopodium polyspermum.– ,,
botryodes.— ,,
Pyrus torminalis.— ,,

Potamogeton perfoliatus.—
Looe pool, Helston.
pusillus.— ,, ,,
Polygonum amphibium.— ,,
Agrimonia Eupatoria.— ,,
odorata.—Gwinear.
Lithospermum officinale.—
Gunwalloe.
Genista tinctoria.— Lizard.
b. humifusa.— ,, Penden
pilosa.— ,,
Anglica.— ,,
Melampyrum pratense.–Penrose.
Cyperus longus.—Gunwalloe.
Rosa spinosissima.—Mullion.
Centaurea nigra *b.* nigrescens.—
Lizard.
Carex riparia.—Gunwalloe.
Cladium Mariscus.— Kynance,
Lizard.
Erica vagans.—Connor downs.
ciliaris.– Truro to Falmouth.
Lysimachia vulgaris.—
Gunwalloe.
Petroselinum segetum.—
Falmouth.
Linaria repens.—Penryn.
Campanula rotundifolia.– Lizard.

Erroneously recorded, or subsequently extinct through drainage, &c.

Cladium Mariscus.— The Marsh, within four years.
Actinocarpus Damasonium
Diotis maritima
Centaurea Calcitrapa.—Newlyn green.
Cynosurus echinatus.—Rev. Mr. Bree.

Remarks on the capture of the Fox or Thrasher Shark, in Mount's-bay.

By R. Q. COUCH, Esq., M.R.C.S.,

ONE OF THE SECRETARIES.

THE occurrence of the fox shark *(Carcharias vulpes)* in Mount's-bay is so rare, that a special notice of the fact is worthy of being recorded in our Reports. The specimen now to be described is the only one I ever saw. It has however been taken in Cornwall before.—Dr. Borlase records one taken in Mount's-bay, and Mr. Couch describes another taken at the mouth of the Looe river. The specimen was taken in a pilchard drift net, on the last day of September, about nine miles off Mousehole. It does not appear to have been a strong fish, for no sooner was it entangled than it became powerless, and consequently easily captured. The rent made in the net was not large, and seems to have been caused quite as much by the men trying to lift the fish in, as by any other cause. The extreme length of the specimen from snout to tail was 12 feet, of which the tail was 6 feet 3 or 4 inches: from the mouth to the origin of the dorsal fin was 2 feet 5 inches,—to the pectoral, 1 foot 5 inches. The eye was about 6 inches from the snout, which was sharp and protruded; the eye was perpendicularly oval, bright, and large. The mouth was small, semi-lunar, and apparently feeble;—the teeth long, slender, moveable, and in three rows: the nostrils were small and not lobed. The spiracles were five, and closely anterior to the fin. The general colour was of a dull brownish-blue mottled inferiorly with brown; the abdomen white, which extended from between the pectoral fins to the base of the tail. Immediately behind the pectoral fin was a scale or large surface with a notch,

which seemed to form a socket for the edge of the fin. The ventral fins were rather large, and posteriorly from them were two large and long bony appendages. The specimen was a male. The length of its tail is very extraordinary, the upper lobe being longer than the body; the inferior lobe is short and white, mottled with brown, and along the posterior margin of both runs a narrow fringe or membranous fin.

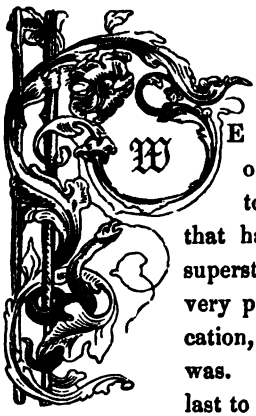
This seems, from its form and muscular appearance, to be one of the feeblest of the sharks, and the idea is borne out by the weakness of the resistance it made when captured. The teeth were long, flat, and feeble, and its food was the pilchard, which it probably frightens by the lash of its tail before it succeeds in taking.

The Popular Antiquities of Polperro and its neighbourhood.

By THOMAS Q. COUCH, Esq., M.R.C.S., &c.

Part 2. Witchcraft, &c.

"Her haggard face was foull to see;
Her mouth unmeet a mouth to bee:
Her eyne of deadly leer:
She nought devised but neighbour's ill;
She wreak'd on all her wayward will,
And spoil'd all goodly cheer."



WE are now come to a less pleasing portion of our popular antiquities than those presented to the society at its last meeting, and one that has suffered less from age than the elfin superstitions. The belief in witchcraft is still very prevalent, even among people of some education, and, where it prevails, is as firm as it ever was. Of all popular errors, too, it will be the last to give way, since there are many strange coincidences of daily occurrence, which, to minds unused to inductive reasoning, and not over nice about distinctions between *post* and *propter*, have all the relationship of cause and effect.

The notion that mysterious compacts are formed between evil spirits and wicked men is a very old and wide spread one, though with us it has nearly become obsolete. In the present day such a bargain is but rarely suspected, and but few are found hardy enough to declare that they are parties to so unholy a transaction. There are, however, even now, occasional instances of persons who do not scruple to declare that they have bartered their future well-

being for present power and advantage. A poor unhappy fellow, but lately dead, pretended, in vulgar parlance, to have "sold himself to the devil," and was consequently looked on by his neighbours as a miracle of impiety. Not that he was actively vicious; for if he had supernatural powers of ill-doing, he was never known to use them to the detriment of others, except indeed when the depth of his potations had not left him cash enough to pay the reckoning. He was then accustomed to hold his hat up the chimney, and demand money, which was promptly showered down into it. The coin so obtained the landlord invariably refused with a shudder, and was glad to get quit of him on these terms.

The faculty of witchcraft is thought to be hereditary, and on this account alone many really good natured persons are kept aloof from by their neighbours, and rendered miserable by being the object of all manner of unkind suspicions. They are studiously shunned, or, when communication with them cannot be avoided, their ill-wish is deprecated by a slavish deference. If met on the highway care is taken to pass them on the right hand.

For some inexplicable reason the power of witchcraft is most frequently delegated to females.* These witches are supposed to have the power of changing their shape, and resuming it again at will. An old woman, who was ugly, lame, and cross-tempered, in fact the very ideal of a witch, is said to have met with her lameness in the following way. A hare of very large size, remarkably fleet of foot, and very wily, was occasionally met with in various parts of the parish, and, though it had been frequently pursued, had always wearied or baffled the hounds. It had been fired at times without number, and, according to our best shots, had carried off incredible quantities of lead. At length it came to be considered as something more than an ordinary hare. On a certain day it crossed the path of two or three determined sportsmen, who followed it for many miles, and fired several rounds at it with the usual want of success. Before relinquishing the chase, one of the party suggested the trial of silver bullets, and accordingly

* The sagacious King James offered an explanation.—*Vide* Ellis's Notes to Brand: "Sorcery and Witchcraft."

silver coins were beat into slugs for the purpose. The hare was again seen, fired at, and this time wounded, but not so effectually as to prevent its running round the brow of a hill and disappearing among the rocks. The sportsmen searched eagerly, but vainly for it, the hare was however nowhere to be seen, but crouched under a shelving rock was old Molly, panting and flushed as if from a hard chase. From that day forward she was noticed to have a limp in her gait.

The toad and the black cat are among the most usual attendants of the witch, or rather, the forms which her imps most commonly assume. The appearance of a toad on the door-step is taken for a certain sign that the house is under malign influence, and the poor animal is put to some frightfully barbarous death.

The most common results of the witch's malice, or, as it is termed, "the ill-wish," are, misfortunes in business, diseases of an obstinate and deadly character in the family or among the cattle. The cow refuses "to give down" her milk, the butter is spoilt, or the household tormented by incredible quantities of those animalcules said by Sir Hugh Evans to be "familiar to man, and to signify love." There are a hundred other ways in which the evil influence may be manifested.

When witchcraft is suspected, the person "overlooked" has immediate recourse to the conjurer, the very bad representation of the astrologer of a former age. The conjurer is an important character in a Cornish village. He is resorted to by despairing lovers; he counsels those under the evil eye, and discloses the whereabouts of stolen goods. His answers, too, are given with true oracular ambiguity. "Own horn eat own corn" was his reply to a person who consulted him about the disappearance of various little household articles. When appealed to in cases of suspected witchcraft, the certainty of weird influence is proved beyond doubt, and the first letter of the witch's name, or a description of her person, is given, or even, it is said, her bodily presence depicted on a mirror.

The certainty of the ill-wish being thus established, and the person of the witch fixed on, the remembrance of some past

"difference" or quarrel places the matter beyond doubt. This mode of proceeding to a conclusion is thus truly and quaintly described by old Dr. Harsnet:—"Beware, look about you my neighbours. If any of you have a sheep sick of the giddies, or a hog of the mumps, or a horse of the staggers, or a knavish boy of the school, or an idle girl of the wheel, or a young drab of the sullens, and hath not fat enough for her porrage, or butter enough for her bread, and she hath a little help of the epilepsy or cramp, to teach her to roll her eyes, wry her neck, gnash her teeth, startle with her body, hold her arms and hands stiff, &c. And then, when an old mother Nobbs hath by chance called her 'idle young housewife,' or bid the devil scratch her; then no doubt but old Mother Nobbs is the witch, and the young girl is owl-blasted." *

One of the various methods of dissolving spells is now resorted to. It is a belief that the power for evil ceases the moment blood is drawn from the witch, and our newspapers not unfrequently record instances of assault, when the intention was in this way to break the witch's spell. When an ox or other animal has died in consequence of the ill-wish, it is usual, to take out the heart, stick it over with nails and pins, and roast it before the fire until they have one by one dropped from it, during which process the witch is supposed to be suffering in mysterious sympathy with the roasting heart. There are many stories told of how the wicked woman has been, by these means, driven to confess, and to loose the family from the spell.

The wiser method of prevention is very often taken, and the house, with all it contains, is protected from harm by nailing a horse-shoe over the centre of the door-way. No evil spirit can come in its neighbourhood, and it has the power of rendering all ill-wishes harmless to those who are under its guard. There are few farm-houses without it, and scarcely a vessel or boat puts to sea without its horse-shoe nailed to the mast or bowsprit. Another preventative of great fame is the mountain ash or *care tree.*

Besides the witch and conjurer, we have yet another and a more pleasing character to mention. The charmer is generally an elderly

* Declaration of Popish Impostures, quoted in Hutchinson's Historical Essay, 2nd Edit., 1720.

female, supposed to be gifted with supernatural power, which she exercises for good. By her incantations and ceremonies she stops blood, and cures inflamed eyes and erysipelas (*vulgo vocato* "wild-fire"). I know but little of her doings, and have heard only one of her many charms, which is good for an inflammation, and runs thus:—

"There were two angels came from the east,
One brought fire, the other frost:
Out fire!—in frost!"
(Here follows the names of the Trinity.)

It seemed necessary to give an account of this—the most debasing of all our superstitions, in order to render the subject of our popular antiquities complete. For the sake of lessening, in some degree, the feeling of humiliation which the contemplation of this subject must bring, I append, as an encouraging contrast, the following interesting and original letter, containing an account of a case tried at Exeter, where the witch was, in open court, gravely put to the ordeal of the creed and Lord's prayer. The letter is dated September ye 14th, 1696, and was addressed to the Bishop of Exeter by Archdeacon (?) Blackburne.

"My Most Hond. Lord.

"Yr Lordship was pleas'd to command me by Mustion to attend the Tryal of ye witch, and give you some account of it: It was thus.—

"Elizabeth Homer, alias Turner, was arraigned on 3 several inditements for mourthering Alice the daughter of Thomas and Elizabeth Bovet, and for pining and lameing Sarah and Mary daughters of ye same Thomas and Elizabeth Bovet.

"The Evidence given wch was anything material was thus:—

"Thomas Bovet the father swears that Alice the youngest of ye three daughters being about 4 years old was taken very ill in her belly & that Physitians cou'd see no natural cause of her illness and yt she died in 5 days. That Mary was so taken likewise. Her body strangely distorted and her legs twisted like the screw of a gun; that she would often goe wh her eyes shut into the fire

and say that Bett Homer drove her in, continued thus above 7 weeks. She was about 10 years old.

"That Sarah 9 years old was taken after ye same manner, complaining of being scratch't in bed by a cat wch she said was Bett Homer whom she describ'd exactly in the apparel she had on tho' the child had not seen her in 6 months before.

"That after her imprisonment they were both tormented by pinching and biting, al ye time crying out stil on Bett Homer, at present the prints of pinches and marks of teeth appearing on their arms and cheeks, (this point attested also by Justice Anchestor who was wth the children at the time.) that they would vomit pins and stones, 2 crooked pins came away in Sarah's water. Sarah cry'd out the witch had put a pin into her, the print of one appeared just under the skin, and at last it came out upon her middle finger; cry'd out of being struck by ye witch wth a stick the mark of which stroke appear'd at the time upon her ancle. Sarah said that Bett Homer told her how she kill'd Alice by squeezing her breath out of her body, and that she had a teat on her left shoulder which was suck't by toads.

"Elizabeth Bovet the mother depos'd in like manner concerning Alice who continued ill 5 days and so dy'd crying out why doe you kill me. That Sarah and Mary were taken ill alternately not able to say their prayers saying they were threaten'd by the witch if they should doe it to be served by her as Alice was, and that she made 'em swear and curse. That they were both of late very hungry and being asked why they were so they said the head of Bett Homer came off of her body and went into their belly which wou'd when they laid so appear to be prodigiously swell'd and the swelling abate all of a sudden when they said it was gone out of 'em again.

"That Sarah walk't up a wall 9 foot high 4 or 5 times backwards and forwards her face and forepart of her body parallel to the ceeling of ye room saying at the time that Bett Homer carry'd her up.

"The children were also produced in Court who gave the same account sensibly enough, Mary adding further that she saw Bett

Homer in her ful shape playing with a toad in a basin and leaving it suck her at a nipple between her breast and shoulder.

"Alice Osborn swore that she threaten'd her upon refusing her some barm, she afterwards found a vessel after she had wash'd it for brewing fill'd full of drink which they threw away, and then Brewing and filling ye vessel wth drink in 4 or 5 days neither she nor her husband having drawn any she found it quite empty, and as dry as if no drink had ever been in it. That Bett Homer threaten'd her husband saying, Thou hast children as well as others and if I come home again I'll mind some of 'em.

"John Fursey depos'd to his seeing her three nights together upon a large down in the same place as if rising out of the ground.

"Margaret Armiger deposed that on ye Saturday before the tryal when the witch was in Prison she met her in the country at about 20 foot distance from her.

"Mary Stephens deposes she took a red hot nail, and drove it into the witches left foot-step upon which she went lame and being search'd her leg and foot appear'd to be red and fiery, that she continued so 4 or 5 days when she pull'd up the nail again and then the witch was well. This is what was most material against her.

"The witch deny'd all shew'd her shoulder bare in court when there appear'd nothing but a kind of mole or wart as it seem'd to me. She said the Lord's Prayer stopping a little at *forgive us our trespasses* but recover'd and went on, and she repeated the Creed without a fault.

"My Lord Chief Justice by his questions and manner of hemming up the Evidence seem'd to me to believe nothing of witchery at all and to disbelieve the fact of walking up the wall which was sworn by the mother. The Jury brought her in not guilty. * * * * * * * *

"My Lord
Yr Lps
most oblig'd and
most obedient humble servt
BLACKBURNE."

Notice of the occurrence of two rare Birds near Penzance in 1853, *forming an addition to the British Fauna.*

By EDWARD HEARLE RODD, Esq.,

ONE OF THE SECRETARIES.

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1. American Stint *(Tringa pusilla).*

THE fact of the western district of Cornwall having in the past year contributed an addition to the ornithological *Fauna* of Britain, by the capture of an undoubted example of the American stint, induces me to make a few observations in reference to its characters; and, as the immediate vicinity of Mount's Bay was the locality which afforded this specimen, our Transactions may have a fair claim for an especial record of this new British bird.

This small *Tringa* was shot by Mr. Vingoe in October last, and in examining the specimen minutely, and comparing it with its closely allied species, *Tringa minuta* and *Tringa Temminckii*, its distinctive characters clearly exhibited the specific value of the bird. The dimensions, &c., hereafter referred to, were furnished by Mr. Vingoe, and they have been compared with the example with a view of testing their accuracy. Perhaps the most remarkable external differences between the new bird and the two others referred to are in the superior dimensions of the feet, and the colour of the outer tail-feathers, which in the present instance are light brownish-grey, the same feathers in *Tringa Temminckii* being pure white. The general appearance of the bird is smaller than the two species referred to: the bill is longer, more deflected, with the point less obtuse and less rounded. Although the dimensions of the legs in the length of the tarsus perfectly agree with those of Temminck's stint, yet the colour and

shape of the tail coincide with the little stint; the American species, therefore, partakes of certain characteristics peculiar to each of the other two, which specifically distinguishing them, help to point out and clearly define the distinction of this new but closely allied British Bird. (For dimensions, see "Zoologist.")

2. Short-toed Lark *(Alauda brachydactyla).*

Scarcely less interesting, as a subject of notice, is the capture of another extremely rare British bird in the Scilly Isles during the past month, viz., the short-toed lark, one specimen of which only before the present is recorded as having occurred in England, and which forms one of the supplemental plates in "Yarrell's British Birds." The capture of the Scilly specimen is, therefore, not only the second example of its occurrence as a British bird, but it forms also another addition to the Cornish catalogue.

October 27th, 1854.

Additions to the Cornish Ferns.

By MASTER TRACEY MILLETT.

Polypodium Dryopteris
Cystopteris fragilis
Lastrea cristata
——— *spinulosa*
Polystichum lobatum
Athyrium Filix-fœmina
Asplenium Marinum
——— *Ruta muraria*
Ceterach officinarum
Trichomanes radicans

On two species of Sharks, believed to have been confounded together under the name of "Basking Shark."

By JONATHAN COUCH, Esq., F.L.S., &c.,

MEMBER OF THE SOCIETY.

THE basking shark (the *Squalus maximus* of Linneus, and *Selachus maximus* of Cuvier,) is said to be found not uncommonly on the north-west coast of Ireland, where it is known by the name of "sun-fish," from its habit of basking in the sun on the surface of the water; and when, as may happen once or twice in a summer, it falls into the hands of the fishermen, it proves no insignificant prize, from the large quantity of fine oil that is extracted from its liver. Thirteen of these fishes, which were caught at Galway in the year 1830, are reported to have yielded 62 gallons of oil; but these fish must have been small, in comparison wlth a specimen of the fish which was caught near Penryn in the year 1809, and which is mentioned in the Cornish Fauna, where it is recorded that 198 gallons of oil were extracted from the liver. The fish itself, which was perhaps the largest that has ever been caught, measured in length 30 feet; but great as this appears, there is no doubt that Blumenbach was mistaken when he said that the basking shark continued to add to its bulk as long as it lived. This observation is not true of any animal whatever. I am not aware that any other individual of this species than the one here mentioned has been recorded as taken on the Cornish coast; but this will not be thought surprising, when we consider the enormous size it reaches, and the corresponding strength it is capable of exerting, when struggling with any power that our

fishermen would be able to bring into action against it. It was the great size of this species, coupled with its generally quiet manners—so different from those of the generality of sharks, which caused it to be classed among the species of whales that are often found on our coast, until the eminent naturalist John Ray had an opportunity of examining it, and found it to be a shark. But it may be judged that it is the rarity of its occurrence, rather than any similarity in its form to any other of the various species of sharks, that is the principal cause why so much uncertainty exists concerning it, and has caused it to be confounded with more than one other species of this gigantic family.

Cuvier, indeed, has supposed that the differences to be found in the descriptions of these fishes by different nuturalists are to be ascribed to incorrectness of observation; but Blainville is persuaded that no less than four species have been mistaken for each other under the name of basking shark; and it can scarcely be supposed that two species at least, which have been taken in Cornwall, of which figures have been taken, and the second of which is mentioned in the Cornish Fauna under the name of the Rashleigh shark, can be confounded together by any one who may have had an opportunity of examining the fishes, or the drawings of them; or that either of them can be the same with that of which a figure is given in Mr. Yarrell's History of British Fishes, vol. ii., p. 396.

This last named fish (the Rashleigh shark) was 29 feet 4 inches in length, and 24 feet round the body; but, although it differed in some respects, and especially in bulk, I have little hesitation in believing it to be of the same species with another large shark, but of much less comparative size, that became entangled in a mackerel net off the Start point, in the month of March, 1852, and of which I was favoured with a sketch and detailed description from one or two friends who had examined it when it had not long been taken from the water. Its length was 16 feet 7 inches; the tail, much as in the common Toper (*Galeus vulgaris* of Cuvier); but it had no ridge on the side of the body towards the tail, as in the basking shark taken at Penryn; and this circumstance, coupled

also with a great difference in the form of their teeth, which constitutes so wide a line of distinction between them, is sufficient to warrant their being placed in even a different genus from each other. The skin of the body was not rougher than in the generality of sharks. The teeth were flat on the jaws, as in the ray-mouthed dog-fish *(Mustelus levis)* and common thornback; whereas those of the basking shark are conical. The aspect of the fish, viewed in front, brought the eyes into view, but in other respects was not unlike that of the common skate. Snout rather sharp, and projecting; head flattish, and a little raised: proportions of the body much as in the blue shark; the colour brownish, lighter on the belly, but not white. The five gill-openings possessed the genuine mark of the genus *Selachus*, in having their opening very long, and reaching far upwards to the back; and placed before them was a doubling of the skin, which bore some likeness to another gill-opening. The dorsal fins two, the anterior rather inclining backward: pectoral fins not proportionately so long as in the blue shark: an anal fin: a temporal orifice was not found. This fish was a female.

A comparison of the three drawings in outline, with which I have been favoured, and which were taken from the specimens soon after they were caught, will be sufficient to establish the fact that the fishes here described are of at least two species; and I am of opinion that this sketch of the true basking shark should be accepted as a fair representation of that fish, with the exception that the tail appears to have been distorted or bent down at its point, and that the pectoral fins are set too high on the sides, a circumstance to be accounted for by the fact, that this enormous fish, which was supposed to weigh 8 tons, must have lain on the ground in such a manner as to have rendered it difficult to observe its true proportions.

The first and largest specimen of the Rashleigh shark was also of large dimensions, but the second, of which I have given a more minute description, appears to have been so much emaciated as to convey the impression of its having been in a sickly condition, which will explain the fact, that the summit of the head was much

wider than the body above the gill-openings, and will also account for its being taken in the manner and place already mentioned, for there can be no doubt that its usual residence is at the bottom, and that too in very deep water. The particular direction upward of the small and slender snout of this fish, in the larger specimen, I ascribe to some accident at the time of capture, or soon after death.

Of another large and remarkable species of shark, only of late years recognised on our coast, the highly characteristic figure of a Cornish specimen, from the crayon of William P. Cocks, Esq., of Falmouth, and now presented to the musuem of our society, offers a good representation. It so much resembles the figure of the spiny shark (*Echinorhinus spinosus*) of Mr. Yarrell's Supplement, p. 56, that we cannot doubt its being the same; but it is so little like the engraving at p. 54 of the same supplement, in its general form, and especially in the shape of its singularly-formed tail, as to infuse a suspicion that there may be two species which have been confounded together under one name, in this instance also.

Notices of extraordinary vegetable productions.

By R. EDMONDS, Jr., Esq.

IN the latter part of July last, in a garden at Marazion, I saw growing up out of the centre of a bud of the cabbage rose a stem bearing on its top another bud. Both buds had begun to expand, but the growth of the lower one seemed to be checked by that of the upper. As it was not likely that either of them would fully expand, the plant being unhealthy, I took the branch with the buds on it, and it is now before you. The lower bud had no seed-vessel beneath its calyx, and this defect may have caused the plant to make an effort to produce another bud with a perfect seed-vessel, which it accomplished. A gentleman informed me that a similar thing occurred last year with a rose of another kind, in Penzance.

Another singular phenomenon in the vegetable world may be seen in the county of Surry, on the Merrow downs, very near where the Guildford Race-course crosses the road from these downs to Guildford. From a very large yew-tree there (the trunk of which is 19 feet in circumference) springs, at the height of 12 feet 10 inches from the ground, another large tree (*Pyrus areæ*), whose trunk is 4 feet 1 inch in circumference, both trees being healthy and vigorous. My informant, a gentleman living in that neighbourhood, made the measurements himself at my request.

Penzance, 27th Oct., 1854.

The Popular Antiquities of Polperro and its neighbourhood.

By THOMAS Q. COUCH, Esq., M.R.C.S., &c.

Part 3. Charms, Omens, &c.

"Obscœnique canes, importunæque volucres
Signa dabant."—*Virgil.*

THERE are numerous disjointed fragments of superstition which have been so sadly misshapen by time as to defy all attempts to classify them, and yet are worthy of being preserved against the period when the progress of education shall have rendered them obsolete. These are the superstitions connected with animals, plants, and things inanimate, and the medical or other virtues attributed to them.

The domestic treatment of disease among our poor consists chiefly of charms and ceremonies, and even when recourse is had to material remedies, as much importance is attached to the rites which attend their employment as to the agents used. In many cases we may notice remnants of the old doctrine of signatures, and the idea of sympathies and antipathies between separate and dissimilar bodies. The brightest coloured decoctions, as saffron-water, are given to "throw out" exanthematous eruptions; whilst the nettle rash is treated by copious draughts of nettle tea. The fisherman whose hand is wounded by a hook is very careful to preserve the hook from rust during the healing of the wound.

The following instances will illustrate the supertitious character of the household medicine of the poorer of our country people:—

If the infant is suffering from the *thrush*, it is taken, fasting, on three following mornings, to have its mouth blown into by a posthumous child. If afflicted with the hooping cough, it is fed

with the bread and butter of a family the heads of which bear respectively the names John and Joan. In the time of an epidemic, so numerous are the applications, that the poor couple have little reason to be grateful to their godfathers and godmothers for their gift of these particular names. Or, if a piebald horse is to be found in the neighbourhood, the child is taken to it, and passed thrice under the belly of the animal: the mere possession of such a beast confers the power of curing the disease. The owner of a piebald horse states that he has frequently been stopped on the road by anxious mothers, who inquired of him, in a casual way, what was good for the hooping cough? and the thing he mentioned, however inappropriate or absurd, was held to be a certain remedy in that particular case.

The passing of children through holes in the earth, rocks, or trees, was once an established rite, and the old Saxon penetentiaries record strict and protracted fasts against "the woman who useth any witchcraft to her child, or who draws it through the earth at the meeting of roads, because that is great heathenness." Remnants of this pagan usage are still to be observed among the peasantry. Boils are said to be cured by creeping on the hands and knees beneath a bramble which has grown into the earth at both ends. Children afflicted with hernia are still passed through a slit made in an ash sapling, before sunrise, fasting, after which the slit portions are bound up, in the hope that, as they unite, the malady will be cured.

The ash is a tree of many virtues: venomous reptiles are never known to rest under its shadow, and a single blow from an ash-stick is instant death to an adder;—struck by any other wand it is said to retain marks of life till the sun goes down.* The mountain ash, or care, has a still greater reputation in the curing of ills arising from supernatural as well as ordinary causes: it is the dread of evil spirits, and renders null the spells of the witch. The countryman will carry for years a small piece of it in his pocket, as a protection against the ill-wish, or as a remedy for the

* The antipathy of the serpent to the ash is a very old popular falacy.—*Vide* Pliny, Hist. Mundi, Lib. xvi.

rheumatism. If his cow is out of health, and he suspects that she is *overlooked*, away he runs to the nearest wood and brings home branches of *care*, which he suspends over her stall, or wreathes round her horns, after which he considers her safe.

The cures for warts are many and various. A piece of flesh is taken *secretly*, rubbed over the warts, and buried in the earth, and as the flesh decays, the warts vanish. Or some mysterious vagrant desires to have them carefully counted, and marking the number on the inside of his hat, leaves the neighbourhood, and takes the warts with him.

There are a few animals the subject of superstitious veneration, and a much greater number whose actions are supposed to convey intimations of the future. We are too little acquainted with the details of the practice of augury among the druids, and the differences between it, and its observance by our Saxon and Danish forefathers, to be able to mark the origin of each particular superstition; at all events the belief is too general to have been the result of local or individual observation, and has all the appearance of being a system once entire, but long since exploded. The desire to look into the future belongs to all times and all conditions; but the persistency and generality with which the faculty of foreshadowing coming events has been attached to particular animals is very remarkable. In some instances it would almost seem as if they were considered more in the light of causes, than prognostics; yet, as the doctrine of fatalism, in a restricted sense, runs through all our popular beliefs, we may consider, for instance, the conduct of the inhospitable housewife who drives off the cock that crows upon the door-step, warning her of the approach of strangers, as only a fresh illustration of a very old fallacy, which consists in the belief that when the prophet is silenced, his predictions are averted. Here are some of our superstitions connected with certain animals. The howling of dogs, the continued croaking of ravens over a house, and the ticking of the death-watch, portend death. The magpie is a bird of good or ill omen, according to the number seen at one time.—

> "One for sorrow:—two for mirth:—
> Three for a wedding:—four for death."

A crowing hen is a bird of ill-luck. An old proverb in use here says,—

> "A whistling woman, and a crowing hen,
> Are two of the unluckiest things under the sun."*

And the former is always reproved, and the latter got rid of without loss of time. M. Pluquet gives a similar proverb in his book on the superstitions of the people of Bayeux. "Une poule qui chante le coq, et une fille qui siffle, portent malheur dans la maison."

A country lad informed me that if, on first hearing the cuckoo, the sounds proceed from the right, it signifies "that you will go vore in the world;" if from the left, "that the ensuing year will be one of ill-fortune."

Particular honour is paid to the robin and the wren. A local distich says,—

> "He that hurts a robin or a wren
> Will never prosper sea nor land."

This gives them an immunity which the most mischievous urchin never dares to violate.

It is a very prevalent belief that a pillow stuffed with the feathers of wild birds delays the departure of the dying. Death is also thought to be prolonged until the ebb of the tide.

The killing of the first adder seen for the season, is a sign that the person is to triumph over his enemies. The slough of an adder hung to the rafters preserves the house against fire.

The wonderful polity of bees could scarcely have escaped observation in the earliest ages, and they were accordingly supposed to be endued with a portion, "divinæ mentis." Our forefathers appear to have been among those who considered bees as possessing something higher than ordinary instinct, for there is yet a degree of deference paid to them that would scarcely be offered to beings endowed with only the usual kind of animal intelligence. On the death of any relative, the husbandman takes care to acquaint the

* This is sometimes put:—

> "A whistling woman, and a crowing hen,
> Are two of the unluckiest things for men."

bees of it by moving the hive, or putting it in mourning, by attaching to it pieces of black cloth or crape; which neglected, they are said to leave the hive. The sale of bees is a very unlucky proceeding, so they are always *given*, and a bushel of wheat (the constant value of a swarm) is expected in return.

In some houses when death has occurred, the indoor plants are also hung with black, for if this be neglected they are said to droop and die. The cricket is a bringer of good luck, and its departure from a house is a sign of coming misfortune.

Among the omens believed in, or existing in proverbs, we may further mention that the breaking of a looking-glass entails "seven years trouble, but no want." The dirgeful singing of children portends a funeral. There is scarcely a sensation but has its meaning. If you shudder, it implies that some one is walking over the spot that is to be your grave. If the left palm itches, you will soon have to pay; if the right, to receive money. If the knee itches, you will kneel in a strange church. If the sole of the foot tingles, you will walk over strange ground. If the ear tingles, you will hear of "hastis" news. If the cheek burns, some one is talking scandal of you. I have frequently heard the following lines spoken:—

"Right cheek! left cheek! why do you burn?
Cursed be she that doth me any harm.
If it be a maid; let her be staid.
If it be a widow; long let her mourn.
But if it be my own true love;
Burn, cheek, burn!"

Even the white patches at the roots of the nails are not without their significance. They are called 'gifts;' and it is said that—

"A gift on the thumb, is sure to come.
A gift on the finger, is sure to linger."

Translations from Domesday.

By JONATHAN COUCH, Esq., F.L.S.,

MEMBER OF THE SOCIETY.

Continued from p. 185.

The same holds Tremodret; Goduin held it in the time of King Edward, and it was taxed for one hide, nevertheless there is one hide and half: the arable land is fifteen carucates: there are five ploughs, and seven bond servants, and eight villains, and seventeen borderers, and one acre of wood; pasture three miles long, and two miles broad: formerly it was worth 60 shillings, now 40 shillings.

The same holds Tregoin; Brismar held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is four carucates: there is one plough and half, and two bond servants, and five borderers; pasture one mile long, and a half a mile wide: formerly it was worth 10 shillings, now 7 shillings.

Turstin holds of the Earl, Clunewic; Wine held it in the time of King Edward, and it was taxed for half a ferling: there are two acres of land: the arable land is two carucates: there are two borderers, with one bond servant, and four acres of wood, and fifteen acres of pasture: formerly it was worth 5 shillings, now 3 shillings.

Hamelin holds of the Earl, Treganmedan; Brictric held it in the time of King Edward, and it was taxed for two ferlings, nevertheless there is half a hide: the arable land is two carucates: there is one plough, with one bond servant, and four borderers: the pasture is one mile long, and half a mile wide: formerly it was worth 10 shillings, now 7 shillings and 6 pennies.

The same holds Penfontenio; Alsi held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is four carucates: there are two ploughs, and two bond servants, and six borderers, and five acres of wood, and ten acres of pasture: formerly it was worth 10 shillings, and so now.

The same holds Trenant; Brismar held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is five carucates: there are three ploughs, and three bond servants, and six borderers, and ten acres of pasture: formerly it was worth 20 shillings, now 15 shillings.

The same holds Tregavran; Leuric held it in the time of King Edward, and it was taxed for one acre of land: the arable land is one carucate: there is one borderer, with one bond servant, and forty acres of pasture: formerly it was worth 12 pennies, and so now.

The same holds Bethnecote; Almer held it in the time of King Edward, and it was taxed for half a ferling: the arable land is one carucate: there is one villain, with one borderer, and forty acres of pasture: formerly it was worth 5 shillings, now 3 shillings.

Turstin holds of the Earl, Tribertha; Ulnod held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is half a hide: the arable land is four carucates: there are three ploughs and half, and two villains, and six borderers: formerly it was worth 15 shillings, and so now.

Nigellus holds of the Earl, Ulnodestone; Elric held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is six carucates: there are four ploughs and half, and five bond servants, and four villains, and twelve borderers, and one acre of wood, and ten acres of pasture: formerly it was worth 20 shillings, and so now.

The same N. holds Guerdevalan; Brismar held it in the time of King Edward, and it was taxed for half a hide: the arable land is eight carucates: there are six ploughs, and twelve bond servants, and ten villains, and twenty-one borderers, and one acre

of small wood, and one acre of meadow, and twenty acres of pasture: formerly it was worth 4 pounds (£), now 40 shillings.

The same Nigel. holds of the Earl, Trevoet; Alric held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is four carucates: there are two ploughs and half, and five bond servants, and four villains, and six borderers, and one acre of meadow, and thirty acres of pasture: formerly it was worth 40 shillings, now 25 shillings.

The same N. holds Rosminvet; Elnod held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is three carucates: there is a plough and half, and three bond servants, and six borderers, and twenty acres of pasture: value 10 shillings.

The same N. holds Roscaret; Aluuin held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there are three virgates of land: the arable land is four carucates: there are two ploughs, and four bond servants, and two villains, and five borderers, and one acre of meadow, and ten acres of pasture: formerly it was worth 15 shillings, and so now.

The same holds Lancharet; Aluuold held it in the time of King Edward: there is one virgate of land, which was never taxed: the arable land is two carucates, which are there, and two bond servants, and ten borderers, and thirty acres of wood, and ten acres of pasture: formerly it was worth 20 shillings, now 10 shillings: *(note)* this land is of the honour of Saint Petroc.

The same N. holds Trevagar; Aluuin held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is six carucates: there are four ploughs and half, and six bond servants, and eight villains, and eighteen borderers, and one acre of small wood; pasture two miles long, and one mile wide: formerly it was worth 40 shillings, now 30 shillings.

The same N. holds Polefand; Vluric held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is three carucates: there are two ploughs, and three bond servants, and three villains, and

six borderers, and two acres of meadow, and one acre of wood, and ten acres of pasture: formerly it was worth 15 shillings, and so now.

The same N. holds Gloeret: Saulf held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, and two bond servants, and two borderers, and four acres of wood, and ten acres of pasture: formerly it was worth 7 shillings, and so now.

Iovin holds of the Earl, Roscarnon; Grifin held it in the time of King Edward, and it was taxed for one ferling of land: the arable land is two carucates: there is half a plough, and two bond servants, and sixty acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The same Io. holds Lantmatin; Alfeg held it in the time of King Edward, and it was taxed for half a ferling: there is one field (ager) of land: the arable land is one carucate, which is there, with one bond servant, and three borderers, and three acres of wood: formerly it was worth 3 shillings, now 4 shillings.

The same holds Nortone; Almer held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is five carucates: there are three ploughs and half, and three bond servants, and three villains, and five borderers, and seven acres of wood, and 60 acres of pasture: formerly it was worth 20 shillings, now 25 shillings.

The same holds Mortune; Brismer held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is three carucates: there are two ploughs, and two bond servants, and five borderers, and twenty acres of pasture: formerly it was worth 10 shillings, and so now.

The same holds Bellesdone; Chitel held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one ferling of land: the arable land is one carucate: there is half a plough, with one villain, and two borderers, and twenty acres of pasture: formerly it was worth 5 shillings, and so now.

The same holds Pondestoch; Ghida held it in the time of King

Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is six carucates: there are two ploughs, with one bond servant, and one villain, and five borderers, and ten acres of wood, and forty acres of pasture: formerly it was worth 20 shillings, and so now. This land belongs to Lantloho.

The same holds Rospervet; Brixi held it in the time of King Edward, and it was taxed for two ferlings, nevertheless there is half a hide: the arable land is six carucates: there is one plough and half, with one bond servant, and one villain, and four borderers, and three hundred acres of pasture: formerly it was worth 12 shillings, and so now.

The same holds Trebleri; Brixi held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, with one bond servant, and one villain, and three borderers, and forty acres of pasture: formerly it was worth 5 shillings, now 10 shillings.

The same holds of the Earl, Sanwinas; Gudda held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is ten carucates: there are three ploughs, and three bond servants, and two villains, and eight borderers, and forty acres of pasture: formerly it was worth 20 shillings, and so now.

The same holds Lisart; Brixi held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, and three borderers, and sixty acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

Iovin holds of the Earl, Trevret; he held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough and half, and four bond servants, with one villain, and two borderers, and twenty acres of pasture: formerly it was worth 20 shillings, and so now.

The same holds Trevrgen; Eiulf held it in the time of King Edward, and it was taxed for one ferling of land: the arable land

is two carucates: there is one plough, with one bond servant, and two borderers, and forty acres of pasture: formerly it was worth 4 shillings, now 7 shillings.

The same holds Chori; Goduin held it in the time of King Edward, and it was taxed for half a ferling of land: the arable land is half a carucate: there is one bond servant, and one hundred acres of pasture: formerly it was worth 4 shillings, now 2 shillings.

Nigel holds of the Earl, Tredaval; Aluuold held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is eight carucates: there are six ploughs, and eight bond servants, and seven villains, and twenty borderers, and one acre of meadow, and one acre of wood; pasture two miles long, and the same in breadth: formerly it was worth 60 shillings, now 40 shillings.

Bernerus holds of the Earl, Horniecote; Edzi held it in the time of King Edward, and it was taxed for half a virgate, nevertheless there is one virgate of land: the arable land is four carucates: there is a plough and half, with one bond servant, and two villains, and three borderers, and ten acres of small wood, and thirty acres of pasture: formerly it was worth 20 shillings, now 12 shillings.

The same holds Alvevacote; Aluiet held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is a virgate: the arable land is three carucates: there is a plough and half, with one bond servant, and one villain, and three borderers, and three acres of wood, and thirty acres of pasture: formerly it was worth 20 shillings, now 12 shillings.

The same holds Wescote; Ulnod held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one ferling: the arable land is half a carucate: there are two villains, with one borderer, and thirty acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The same holds Roschel; Eduui held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, with one bond servant, and two borderers, and five acres

of pasture: formerly it was worth 7 shillings and six pennies, and so now.

The same holds Trerihoc; Waso held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is one carucate: there are three borderers, and one hundred acres of pasture: formerly it was worth 5 shillings, now 3 shillings.

The same holds Crachenwe; Eduui held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is three carucates: there is one plough, and two bond servants, and six borderers, and four acres of small wood, and twenty acres of pasture: formerly it was worth 20 shillings, now 10 shillings.

The same holds Roslech: Eduui held it in the time of King Edward, and it was taxed for half an acre of land, nevertheless there is one acre of land: the arable land is one carucate: there are three borderers, with half a plough, and thirty acres of pasture: formerly it was worth 5 shillings, and so now.

The same holds Trewin; Eduui held it in the time of King Edward, and it was taxed for one acre of land, nevertheless there is one virgate of land: the arable land is one carucate: there are two borderers, and thirty acres of pasture: formerly it was worth 5 shillings, now 40 pennies.

The same holds Landmanvel; Eduui held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is four carucates: there is a plough and half, and two bond servants, and five borderers, and twenty acres of pasture: formerly it was worth 15 shillings, and so now.

The same holds Tregrebri; Eduui held it in the time of King Edward: there is one hide, which was never taxed: the arable land is three carucates: there is a plough and half, with one bond servant, and four borderers, and thirty acres of pasture: formerly it was worth 20 shillings, now 10 shillings. This land is in the possession of St. Pieran.

Briend holds of the Earl, Witemot; Vluiet held it in the time

of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is four carucates: there are two ploughs and half, and two bond servants, and three villains, and three borderers, and one acre of meadow, and ten acres of pasture: formerly it was worth 20 shillings, and now *(note)* 15 shillings.

The same holds Walsbrav; Sauuin held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one virgate: the arable land is three carucates: there are two ploughs, with one bond servant, and two villains, and three borderers, and two acres of meadow, and ten acres of pasture: formerly it was worth 15 shillings, and so now.

The same holds Pensfov; Eddua held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one virgate: the arable land is two carucates: there is one plough, with one bond servant, and two borderers, and two acres of meadow, and ten acres of pasture: formerly it was worth 20 shillings, and so now.

Briend holds of the Earl, Trenant; Ailmer held it in the time of King Edward, and it was taxed for one ferling of land, nevertheless there is half a hide: the arable land is three carucates: there is one plough, and two bond servants, and seven borderers, and three hundred acres of pasture: formerly it was worth 25 shillings, and so now.

Wills holds of the Earl, Pochehelle; Aluuard held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is sixteen carucates: there are five ploughs, and two bond servants, and eight villains, and thirteen borderers, and forty acres of small wood, and one hundred acres of pasture: formerly it was worth 100 shillings, now 40 shillings.

Alored holds of the Earl, Hiltone; Sbern held it in the time of King Edward, and it was taxed for three virgates of land, nevertheless there are two hides: the arable land is ten carucates: there are five ploughs, and three bond servants, and seven villains, and

eleven borderers, and ten acres of wood, and fifty acres of pasture: formerly it was worth 100 shillings, now 50 shillings.

The same holds Tirlebere; Sauuin held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there are three virgates of land: the arable land is seven carucates: there are two ploughs, and three bond servants, and three villains, and seven borderers, and eight acres of small wood, and thirty acres of pasture: formerly it was worth 40 shillings, and now *(note)* 30 shillings.

The same holds Brecelesbeorge; Aluui held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is half a virgate of land: the arable land is one carucate, which (plough) is there, with one bond servant, and four acres of wood, and ten acres of pasture: formerly it was worth 10 shillings, now 7 shillings and 6 pennies.

The same holds Landsev; Aluric held it in the time of King Edward, and it was taxed for one virgate and half of land, nevertheless there are two hides: the arable land is nine carucates: there are three ploughs and half, and two bond servants, and three villains, and eleven borderers, and thirty acres of small wood, and fifty acres of pasture: formerly it was worth 20 shillings, now 40 shillings.

The same holds Orcet; Aluric held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates, which (ploughs) are there, with one villain, and four borderers, and two bond servants, and two acres of wood, and ten acres of pasture: formerly it was worth 15 shillings, now 12 shillings.

The same holds Borge; Algar held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one virgate of land: the arable land is three carucates: there are two ploughs, with one bond servant, and two villains, and two borderers, and five acres of small wood, and fifteen acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The same holds Roscaret; Aluuin held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is

one virgate of land: the arable land is one carucate: there are two borderers: formerly it was worth 10 shillings, now 2 shillings.

Erchenbald holds Bodbran; Alnod held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is half a plough, and two bond servants, and two villains, and twelve acres of wood, and ten acres of pasture: formerly it was worth 10 shillings, now 7 shillings and 6 pennies.

The same holds Avalde; Dodo held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is three carucates: there is one plough, and three bond servants, and two villains, and one borderer, and sixty acres of pasture; the wood is three furlongs long, and one furlong broad: formerly it was worth 20 shillings, now 10 shillings.

The same holds Bret; Dodo held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is half a hide: the arable land is three carucates: there is one plough and half, and three bond servants, with one villain, and five borderers, and forty acres of pasture: formerly it was worth 20 shillings, now 12 shillings and 6 pennies.

Offers holds of the Earl, Mingeli; Alric held it in the time of King Edward, and it was taxed for half a hide, nevertheless there are two hides: the arable land is twelve carucates: there are three ploughs, and four bond servants, and five villains, and sixteen borderers, and eight acres of wood; pasture one mile long, and half a mile wide: formerly it was worth 4 pounds (£), now 30 shillings.

The same holds Bochenod; the same held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is eight carucates: there is one plough, with one bond servant, and two villains, and six borderers, and one hundred acres of wood, and forty acres of pasture: formerly it was worth 40 shillings, now 10 shillings.

The same holds Tremeteret; Eduui held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless

there is half a hide: the arable land is six carucates: there are two ploughs and half, and two bond servants, and three villains, and nine borderers, and ten acres of wood, and eleven acres of pasture: formerly it was worth 60 shillings, now 15 shillings.

The same holds Trenand; Offerd, himself, held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is eight carucates: there are two ploughs, and two bond servants, and four villains, and twelve borderers, and six acres of wood, and forty acres of pasture: formerly it was worth 60 shillings, now 15 shillings.

The same holds Glin; he held it in the reign of King Edward, and it was taxed for one virgate of land: the arable land is two carucates: there is one plough, with one bond servant, and two villains, and six borderers, and one hundred acres of wood, and forty acres of pasture: formerly it was worth 40 shillings, now 10 shillings.

The same holds Bowidoc; Offers, himself, held it in the time of King Edward, and it was taxed for one ferling: the arable land is two carucates: there is one villain, and two borderers: formerly it was worth 5 shillings, now 2 shillings.

The same holds Pennalt; himself held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one virgate of land: the arable land is four carucates: there are six borderers, and ten acres of pasture: formerly it was worth 20 shillings, now 3 shillings.

The same holds Penponte; he held it in the time of King Edward, and it was taxed for half a hide, nevertheless there is one hide: the arable land is sixteen carucates: there are two ploughs and half, and five bond servants, and four villains, and eighteen borderers, and sixty acres of pasture: formerly it was worth 100 shillings, now 25 shillings.

The same holds Lanthien; he held it in the reign of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is eight carucates: there is one plough and half, and four bond servants, and two villains, and six borderers, and eight acres of wood, and twenty-eight acres of pasture: formerly it was worth 60 shillings, now 20 shillings.

The same holds Trevelian; Bretel held it in the reign of King Edward, and it was taxed for one ferling, nevertheless there are two ferlings: the arable land is two carucates: there is one villain, and three borderers, and five acres of pasture: formerly it was worth 10 shillings, now *(note)* 2 shillings.

Offels holds of the Earl, Trelosch; he held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is eight carucates: there are two ploughs and half, and two bond servants, and three villains, and twelve borderers, and ten acres of wood, and five acres of pasture: formerly it was worth 60 shillings, now 20 shillings.

The same holds Tregril; Alric held it in the reign of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is seven carucates: there are two ploughs, and two bond servants, and four villains, and sixteen borderers, and one acre of wood, and sixty acres of pasture: formerly it was worth 60 shillings, now 20 shillings.

Odo holds of the Earl, Boteled; Osulf held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there are two hides: the arable land is eight carucates: there are two ploughs and half, and four bond servants, and four villains, and twelve borderers, and sixty acres of wood, and fifty acres of pasture: formerly it was worth 40 shillings, now 50 shillings.

The same holds Nietstov; Godric, priest, held it in the time of King Edward: there is one hide which never hath been taxed: the arable land is five carucates: there is one plough, and three bond servants, and three villains, and six borderers, and sixty acres of pasture: formerly it was worth 20 shillings, now 5 shillings.

Odo holds of the Earl, Treluge: Brismar held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one hide: the arable land is two carucates: there is one plough, and two bond servants, with one villain, and two borderers, and six acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The same holds Treviniel; Brismar held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is half

a hide: the arable land is one carucate: there is one plough, and two bond servants, and two villains, and four borderers, and two acres of small wood, and twenty acres of pasture: formerly it was worth 20 shillings, now 10 shillings.

The same Odo holds Trewale; Osulf held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is half a hide: the arable land is two carucates: there are two villains, and four borderers, with one bond servant, and ten acres of pasture: formerly it was worth 15 shillings, now 5 shillings.

Odo holds of the Earl, Portbatland; Leueron held it in the time of King Edward, and it was taxed for one ferling: the arable land is two carucates: there are two borderers, with one bond servant, and four acres of pasture: formerly it was worth 7 shillings, now 2 shillings.

Algar holds of the Earl, Trenant; Osulf held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one hide: the arable land is six carucates: there are two ploughs, and three bond servants, and two villains, and nine borderers, and one hundred acres of pasture: formerly it was worth 40 shillings, now 25 shillings.

The same holds Trewent; Osulf held it in the time of King Edward, and it was taxed for two ferlings, nevertheless there is one hide: the arable land is six carucates: there are two ploughs, and three bond servants, and three villains, and seven borderers, and five hundred acres of pasture: formerly it was worth 30 shillings, now 15 shillings.

Algar holds Plunent; Osulf held it in the time of King Edward, and it was taxed for two ferlings, nevertheless there is half a hide: the arable land is eight carucates: there are three ploughs and half, and six bond servants, and four villains, and twelve borderers, and thirty acres of wood, and forty acres of pasture: formerly it was worth 50 shillings, now 20 shillings.

Algar holds Bentewoin; Osulf held it in the time of King Edward, and it was taxed for two ferlings, nevertheless there is half a hide: the arable land is three carucates: there are two ploughs, aud two bond servants, and three villains, and seven

borderers, and four acres of wood, and ten acres of pasture: formerly it was worth 20 shillings, now *(note)* 10 shillings.

The same holds Trefitent; Osulf held it in the time of King Edward, and it was taxed for two ferlings, nevertheless there is half a hide: the arable land is four carucates: there are two ploughs, and three bond servants, and three villains, and four borderers, and twenty acres of wood, and as many of pasture: formerly it was worth 20 shillings, now 10 shillings.

The same holds Edelet; Osulf held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: there are six ploughs: in domain there are three carucates, and four bond servants, and four villains, and seven borderers, and forty acres of wood; pasture two miles long, and one mile broad: formerly it was worth 40 shillings, now 15 shillings.

Alward holds of the Earl, Tregaraduc; he held it in the time of King Edward, and it was taxed for three ferlings, nevertheless there is half a hide: the arable land is three carucates: there are two ploughs and half, and two bond servants, and four villains, and six borderers, and ten acres of pasture: formerly it was worth 20 shillings, now 10 shillings.

The same holds Chenmerch; he held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one virgate: the arable land is one carucate, which (plough) is there, with one bond servant, and three borderers: there are ten acres of pasture: formerly it was worth 10 shillings, now 7 shillings.

Alnod holds of the Earl, Talgolle; the same held it in the time of King Edward, and it was taxed for two ferlings: the arable land is three carucates: there is one plough and half, and three bond servants, and four borderers, and two acres of wood, and sixty acres of pasture: formerly it was worth 20 shillings, now 4 shillings.

The same holds Trescav; and he held it in the time of King Edward, and it was taxed for one ferling: the arable land is three carucates: there is one plough, with one bond servant, and

three borderers, and three acres of wood, and one hundred acres of pasture: formerly it was worth 25 shillings, now 5 shillings.

Alnod holds Disart; Aluric held it in the time of King Edward, and it was taxed for one ager (field), nevertheless there is one virgate of land: the arable land is one carucate: there is half a plough, and two villains, with one bond servant, and one acre of meadow, and ten acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

Alnod holds Trewderet; Merlesuain held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, and two villains, and four borderers, and one hundred acres of pasture: formerly it was worth 15 shillings, now 10 shillings.

Ednod holds Pengelle; the same held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one ager (field): the arable land is one carucate: there are two borderers, and twenty acres of pasture: formerly it was worth 5 shillings, now 2 shillings.

Alnod holds Vllavestone; Saulf held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is one carucate, which (plough) is there, with one villain, and three borderers: there are one hundred acres of pasture: formerly it was worth 5 shillings, and so now.

Alric holds of the Earl, Lanlawernec; the same held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is half a plough, with one bond servant, and two villains, and three borderers, and ten acres of wood, and sixty acres of pasture: formerly it was worth 20 shillings, now 8 shillings.

Alric holds Drainos; the same held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one ferling of land: the arable land is one carucate: there is half a plough, and two villains, and two borderers, and three acres of

small wood, and thirty acres of pasture: formerly it worth 20 shillings, now 3 shillings.

Alsi holds of the Earl, Trelameer; the same held it in time of King Edward, and it was taxed for half a ferling of land: there is one ager (field) of land: the arable land is one carucate: there is one bond servant, and pasture half a mile long, and the same in breadth: it is worth 12 pennies.

Almar holds of the Earl, Cabulian; the same held it in the time of King Edward, and it was taxed for half a virgate, nevertheless there are three virgates of land: the arable land is six carucates: there is one plough, and three bond servants, and three villains, and seven borderers, and forty acres of wood, and fifty acres of pasture: formerly it was worth 40 shillings, now 10 shillings.

Brictric holds of the Earl, Lisniwen; he held it in the time of King Edward, and it was taxed for half an acre, nevertheless there is one virgate of land: the arable land is two carucates: there is one plough, with one bond servant, and three borderers, and two acres of meadow, and fifteen acres of pasture: formerly it was worth 25 shillings, now 10 shillings.

The same holds Tregal; Burgered held it in the time of King Edward, and it was taxed for one acre of land: the arable land is two carucates: there is half a plough, and two borderers, and one acre of wood, and two acres of meadow, and ten acres of pasture: formerly it was worth 20 shillings, now 8 shillings.

Brictric holds Tregingale; he held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is half a hide: the arable land is three carucates: there is one villain, and one borderer, with one bond servant, and eight acres of wood, and twenty acres of pasture: formerly it was worth 15 shillings, now 5 shillings.

Brictric holds Tretweret; Leuric held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there is one borderer, with one bond servant, and four acres of wood, and forty acres of pasture: formerly it was worth 20 shillings, now 5 shillings.

Brictric holds Odenol; Haemar held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is four carucates: these is one plough and half, and three bond servants, and seven villains, and eight borderers, and thirty acres of pasture: formerly it was worth 30 shillings, now 10 shillings.

Ulsi holds of the Earl, Drainos; he held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there are two ferlings of land: the arable land is two carucates: there is one plough, with one bond servant, and two villains, and three borderers, and three acres of wood, and thirty acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The same holds Trewiliud; he held it in the time of King Edward, and it was taxed for one ferling, nevertheless there are two ferlings: the arable land is three carucates: there is one plough, with one bond servant, and two villains, and two borderers, and twenty acres of wood, and five acres of pasture: formerly it was worth 20 shillings, now 5 shillings.

Colo holds of the Earl, Hela; he held it in the time of King Edward, and it was taxed for one acre: there is one virgate of land: the arable land is two carucates: there is half a plough, and four borderers, and one acre of meadow, and two acres of wood, and five acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

Levenot holds Elerchi of the Earl; Merlesuain held it in the time of King Edward, and it was taxed for one hide, nevertheless there are four hides: the arable land is twenty carucates: there are five ploughs, and ten bond servants, and seventeen villains, and eighteen borderers, and thirty acres of wood, and one hundred acres of pasture: formerly it was worth 100 shillings, now 50 shillings.

Levenot holds Ermenshev; the same held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one virgate of land: the arable land is six carucates: there is half a plough, and two bond servants, and five borderers, and fifteen acres of wood, and twenty acres of pasture: formerly it was worth 15 shillings, now 5 shillings.

Wluuard holds of the Earl, one ferling of land in Rentin; Aluuin held it in the time of King Edward: there is one villain, and ten acres of pasture: it is worth 5 shillings.

Vlsi holds Polhal; Vluuin held it in the time of King Edward, and it was taxed for one ferling of land, notwithstanding there is one virgate of land: the arable land is two carucates: there is one borderer, and three acres of meadow, and sixty acres of pasture: formerly it was worth 10 shillings, now 15 pennies.

Wluric holds of the Earl, Beveshoc; Leuric held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there are two borderers, and one bond servant, and twelve acres of wood; pasture half a mile long, and half a mile wide: formerly it was worth 20 shillings, now 5 shillings.

Dodo holds of the Earl, Karsalan; he held it in the time of King Edward, and it was taxed for half a ferling: there is one acre of land: the arable land is one carucate: there are three bond servants, and thirty acres of pasture: formerly it was worth 10 shillings, now 12 pennies.

Sireuuold holds Widewot; he held it in the time of King Edward, and it was taxed for one ferling: there are two acres of land: the arable land is one carucate: there is one villain, with one bond servant; pasture half a mile long, and the same in breadth: formerly it was worth 10 shillings, now 3 shillings.

Gunhar holds Dimelihoc; Almer held it in the time of King Edward, and it was taxed for half a ferling: there is one acre of land: the arable land is one carucate: there are two borderers, and pasture half a mile long, and the same in breadth: formerly it was worth 10 shillings, now 12 pennies.

Godvin holds Landighe; Alsi held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is one hide: the arable land is five carucates: there is one plough and half, and three bond servants, and two villains, and four borderers, and two acres of meadow, and three acres of wood; pasture one mile long, and the same in breadth: formerly it was worth 30 shillings, now 10 shillings.

Wihvmarc holds of the Earl, Ivcomit; Edmer held it in the time of King Edward, and it was taxed for one ferling of land: the arable land is four carucates: there are two villains, and three borderers, and two acres of wood, and one mile of pasture: formerly it was worth 60 shillings, now 5 shillings.

Wihumar holds Tremarostal; Edmer held it in the time of King Edward: there are two acres of land: the arable land is one carucate: there are two bond servants, with one borderer, and one acre of meadow, and one acre of wood: formerly it was worth 10 shillings, now 30 pennies. This land belongs to the honours of Chei.

Hveche holds of the Earl, Botival; the same held it in the time of King Edward, and it was taxed for half a ferling, nevertheless there is one ferling of land: the arable land is one carucate: there is half a plough, with one bond servant, and two villains, and three borderers, and ten acres of wood, and sixty acres of pasture: formerly it was worth 20 shillings, now 8 shillings.

Rabel holds of the Earl, Trevocarwinoc; Alfeg held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one virgate: the arable land is three carucates: there is one borderer, and twenty acres of wood, and ten acres of pasture: formerly it was worth 5 shillings, now 12 pennies.

Rabel holds of the Earl, Pangvol; Alsi held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is two carucates: there four borderers have one plough: there are three acres of small wood, and twenty acres of pasture: formerly it was worth 5 shillings, and so now.

Bernard, a priest, holds of the Earl, Tacabere; Aluric held it in the time of King Edward, and it was taxed for half a ferling of land, nevertheless there are two ferlings: the arable land is one carucate, which (plough) is there, with three borderers, and five acres of small wood, and forty acres of pasture: formerly it was worth 4 shillings, now 7 shillings.

Humfrid holds of the Earl, Trefilies; Alstan held it in the time

of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is four carucates: there is one villain, and twenty acres of wood, and thirty acres of pasture: formerly it was worth 10 shillings, now 2 shillings.

Seibert holds of the Earl, Henland; Ailmer held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is four carucates: there is one plough, and two villains, and three borderers, and four acres of wood, and thirty acres of pasture: formerly it was worth 10 shillings, and so now.

Frauuin holds of the Earl, Trelingan; Aluric held it in the time of King Edward, and it was taxed for half a virgate of land, nevertheless there is one hide: the arable land is five carucates: there are two ploughs, and five bond servants, and three villains, and six borderers, and twelve acres of wood, and one hundred acres of pasture: formerly it was worth 25 shillings, now 15 shillings.

Andreas holds of the Earl, Polscat; Aluric held it in the time of King Edward, and it was taxed for one ferling, nevertheless there is one virgate of land: the arable land is one carucate: there is half a plough, and two villains, and five borderers, and three acres of wood, and five acres of pasture: formerly it was worth 3 shillings, and so now.

Andreas holds of the Earl, Carbihan; Merken held it in the time of King Edward, and it was taxed for one ferling: there are four acres of land: the arable land is four carucates: there are two ploughs, and four bond servants, and two villains, and three borderers, and five acres of wood, and twenty acres of pasture: formerly it was worth 10 shillings, and so now.

Radulf holds of the Earl, Witestan; Aluuold held it in the time of King Edward, and it was taxed for half a ferling of land, nevertheless there is one ferling: there is half a plough, with one bond servant, and twelve acres of wood: formerly it was worth 20 shillings, now 15 shillings.

Heldric holds of the Earl, Rigven; Brismer held it in the time of King Edward, and it was taxed for one ferling of land, never-

theless there is one virgate: the arable land is three carucates: there are two ploughs, and two bond servants, and six borderers, and forty acres of pasture: formerly it was worth 15 shillings, now 10 shillings.

Blohin holds of the Earl, Deliav; Jaul held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is two carucates, which (ploughs) are there, with one bond servant, and two villains, and four borderers, and one acre of meadow, and twenty acres of pasture: formerly it was worth 30 shillings, now 20 shillings.

The same holds Trefrioc; Jaulf held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is two carucates: there is one plough, with one bond servant, and two villains, and three borderers, and twenty acres of pasture: formerly it was worth 20 shillings, now — shillings.

The same holds Dvvenant; Aluuard held it in the time of King Edward, and it was taxed for one virgate of land, nevertheless there is half a hide: the arable land is three carucates: there is one plough and half, and four bond servants, with one villain, and forty acres of pasture: formerly it was worth 25 shillings, now 15 shillings.

The same holds Treveheret; Aluric held it in the time of King Edward, and it was taxed for half a ferling of land, nevertheless there is one ferling: the arable land is two carucates: there is one villain: formerly it was worth 2 shillings, and so now.

The same holds Trevthal; Brismar held it in the time of King Edward: there is one hide of land: the arable land is eight carucates: there are four ploughs, and seven villains, and seven borderers, and two acres of meadow, and sixty acres of pasture: formerly it was worth 40 shillings, now 20 shillings. The Earl took away this land from the Church of St. Michael.

Rogerius holds of the Earl Travvint; Borgered held it in the time of King Edward, and it was taxed for two ferlings, nevertheless there is one virgate of land: the arable land is one carucate, which (plough) is there, with one bond servant, and four borderers,

and two acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The same holds Deliov; Leuuin held it in the time of King Edward, and it was taxed for two ferlings, nevertheless there is one hide: the arable land is four carucates: there is one plough, with one bond servant, and one villain, and three borderers, and one acre of meadow, and forty acres of pasture: formerly it was worth 30 shillings, now 10 shillings.

The same holds Legea; Alnod held it in the time of King Edward, and it was taxed for two ferlings of land, nevertheless there is half a hide: the arable land is four carucates: there are two ploughs, and two bond servants, and ten borderers, and two acres of meadow, and one acre of wood, and five acres of pasture: formerly it was worth 20 shillings, now 10 shillings.

The same holds Hamet; Alnod held it in the time of King Edward, and it was taxed for one ferling: there are three acres of land: the arable land is two carucates: there is one plough, and three bond servants, and four borderers, and one acre of wood, and thirty acres of pasture: formerly it was worth 10 shillings, now 5 shillings.

The Land of Judhel de Totenhais.

Judhel de Totenhais holds of the King, Forchestane, and Turstin of him: there are three ferlings of land, but it was taxed for one ferling: the arable land is three carucates: there is half a plough, and four bond servants, and two borderers, and fifty acres of pasture, and forty acres of small wood: formerly it was worth 15 shillings, now 11 shillings.

The Land of Goscelmus.

Goscelin holds Pigsdone; Wadel held it in the time of King Edward, and it was taxed for one virgate of land: the arable land is one carucate, which (plough) is there, with one borderer: there are 10 acres of meadow: formerly it was worth 5 shillings, and so now.

Introductory Notes to the "Translations from Domesday:" chiefly extracted from a work entitled "Domesday Book illustrated;" by Robert Kelham, Esq., of Lincoln's Inn, &c.

About the year 900, the Great King Alfred composed a book of this nature, which still existed at Winchester at the coming in of William the Norman, but is since lost. The present record of Domesday was begun by order of King William, in the year of our Lord 1080, and was completed in the year 1086. Its name of Domesday is of Saxon origin, and signifies *a Book of Judicial Verdict.*

The orthography of places in this register of property is frequently different from the names we find them described by in other records of about the same age or soon after, and is often different from what is now known, so that it is sometimes difficult to make out the places intended to be described. To account for this, some persons have with much probability supposed that the variation of spelling or pronunciation has arisen from the fact that the scribes, or as we should now call them, clerks, were Normans, who, in writing down the names from the lips of Saxon witnesses, expressed the sounds according to the manner in which they might be written in their Norman French. It is at least certain that in Cornwall the etymology of the names of lands and places is altogether lost sight of in the manner in which they are expressed in this national record: but this will not account for all the changes which must have taken place, since in numerous instances the names of manors have in the course of time been entirely changed; and Lysons, with all his industry and learning, was compelled to leave a long list which he was not able to explain, or assign to their proper places.

In regard to the measures of land which are mentioned in the Cornish portion of this ancient survey of property, it is to be observed, that a hide of land, as taken for all England, is far from being a certain or uniform measure; but that in general it is to be understood as containing one hundred and twenty acres of the common English measure.

A carucate of land is as much as might be tilled with one plough and the beasts belonging to one plough in a year; having attached to it also a meadow or pasture, and houses for the labouring men and cattle belonging to it. Meadow or pasture land that was for another use was reckoned separately; and the carucate is, therefore, a measure which belongs only to arable land: it was not known to the Britons and Saxons, but was introduced into England by William: it appears to have varied greatly in extent, according to the nature of the soil, or the custom of the country; and it may be observed, in general, that even where the measure of land for the most part may have been well understood, but little accuracy could have been observed in its application to any particular manor. This, in the second general survey of the kingdom in the reign of King Edward the Confessor, so often referred to in Domesday, but now lost, appears to have been set down according to the judgment or conscience of the owner, and so much below the true extent, as to have authorized a new method of enquiry by the commissioners of the Norman. The extent of taxable landed property was thus found to be one-fourth or one-third larger than it had been supposed to be: the lands of the bishops and abbeys having thus received an extension without actual increase, still more than those of the lay proprietors. Coupled with this, the very great abatement of the value of money between the time of Edward and that of William the Norman, when these several assessments were made, is a mighty proof of the great convulsion which the Norman inroad had made in the wealthy ranks of the nation.

The great variation of different portions of the same nation, either in the fertility of the ground or the language of the people, is seen in the fact that sometimes six carucates are regarded as

forming one hide, and in other instances twelve of these measures are required for this purpose. Sometimes one hundred acres are considered as forming one carucate; which again is divided into eight oxgangs, each oxgang forming fifteen acres. The word carucate is also sometimes used to signify the plough itself; and on some occasions half a plough is named; meaning a portion only of the cattle appointed to draw it.

A virgate of land in Cornwall amounted to forty acres; but to less in some other parts of England.

A ferling of land was the fourth part of a virgate; so that ten common acres went to one ferling. But to clear that, another sort of acre is referred to in the Cornish portion of this survey; and Carew and Borlase have estimated it at a large number of acres, of however very different extent. This original word, *ager*, we have preferred, however, to translate by the word *field*, under the authority of Jacobs, who, in his Dictionary of the Law, says, that the word acre formerly meant any open field, without being confined to any determined quantity of ground.

A great knight's fee was understood to contain six hundred and eighty acres of land, when by an acre was specified the exact measure we have named as forming a portion of the oxgang.

In regard to the conditions in which the ordinary men were held, who are mentioned in Domesday as living on the land: the servus, serf, or bondsman, was a servant who lived in the house of his lord, and laboured in all kinds of work without wages, at the will of his master: he was of course fed and clothed; but any thing he received was at the pleasure of his owner; who, if the land were sold, was at liberty to transfer him with it to the purchaser, together with his wife, his children, and all the little property he might chance to possess.

The villain was possessed of privileges that were unknown to the bond servant, but their service was nearly the same, and they were liable also to be sold from one master to another; yet custom, and perhaps the law, was in favour of their possessing some small property in their own right; and in other re[illegible] law afforded them some degree of protection: even th[illegible]

of service on which they held their little cottage was in some degree settled beyond the absolute will of the master.

Borderers—Bordarii, were of a less slave-like condition than either of the two former: their name was obtained from living in a cottage on the borders of the manor; and they held some land as their own, on the condition of supplying the lord with poultry or other articles *in kind.* But however they might differ in other respects, the persons who were in these respective conditions were so firmly fixed to the land on which they were born, that they were not able by any act of their own to separate themselves from it: they were a *descripti glabæ,* as much in thought as in person; and, probably, never thought or wished to change their place.

PROCEEDINGS OF THE GENERAL MEETING

OF THE

Natural History and Antiquarian Society

OF PENZANCE,

HELD IN THE MUSEUM OF THE GEOLOGICAL SOCIETY,
FRIDAY, NOVEMBER 2ND, 1855.

The President, JOSEPH CARNE, Esq., F.R.S., F.G.S., M.R.I.A., in the Chair.

The following gentlemen were elected the Officers and Council for the ensuing year:—

President.

Joseph Carne, Esq., F.R.S., &c.

Vice-Presidents.

J. J. A. Boase, Esq. | Edward Bolitho, Esq.
Rev. J. Punnett, M.A.

Council.

J. Batten, Esq.	W. Borlase, Esq.	D. P. Le Grice, Esq.
T. S. Bolitho, Esq.	R. Branwell, Esq.	R. Pearce, Esq.
E. Bolitho, Esq.	R. V. Davy, Esq.	Rev. M. N. Peters.
W. Bolitho, Esq.	S. Higgs, Esq.	J. Scobell, Esq.

Treasurer.

D. B. Bedford, Esq.

Secretaries and Curators.

E. H. Rodd, Esq. | R. Q. Couch, Esq.

PRESIDENT'S ADDRESS.

THE present age is remarkable for the rapid progress of Physical Science in all its branches, —far more rapid than any former age has witnessed. In Astronomy, Geography, Geology, Chemistry, Natural History, &c., such, and so many, have been the recent discoveries, that not only new classifications, but new dictionaries, will be required, to give correct ideas of the state of those sciences.

The establishment of scientific institutions and museums in most of the principal towns of this kingdom has greatly aided this progress. Several towns in the north of England have adopted the plan, sanctioned by the Government, of taxing the inhabitants at the rate of one half-penny in the pound to meet the expenses attending those institutions, but in most others science has depended, and not vainly, on the zeal, the labours, and the voluntary contributions of the inhabitants. The latter plan has been adopted by this society, and I may here express my hope that its labours from year to year, united with those of a sister institution, have in some degree tended to illustrate and promote the particular branches of science which have been the principal objects of our attention.

With respect to the last year I must express my regret that, owing to my infirm state of health, I have been able to pay very little attention to the affairs of the society; and possibly we may not have exhibited so much activity in exploring the different

branches of Natural History as in some former years, but I am happy to say that some of its members have shewn their usual devotedness to the science, and that in some departments, species have been discovered new to Cornwall, and some entirely new. The researches of one of our secretaries have been directed principally to the *Crustaceans,* of which he reports that he has obtained several new species in Mount's-bay. It appears probable, however, from the reports of those whose attention has been directed to the subject, that all the species of this animal that have yet been discovered bear little proportion to the whole number. In a statement made to the British Association at their last meeting, by Mr. Spence Bate, he reports that in one branch,—that of the *Amphipodus Crustacea,* he had added between fifty and sixty new species to the British *Fauna.* But,—what is perhaps of more consequence,—our secretary thinks he has discovered some facts, in the process of changing their shells, which have not been before noticed by naturalists: he intended to lay a Paper on the subject before this meeting, but as he has not been able to prepare it, I will venture to go out of the usual course of an introductory address, and quote his words to me, for the information of the society.

"It is well known that for a crab to grow, it is necessary that it should cast off its old shell. This it does entire; even the lining of the eyes, lungs, stomach, &c., are all cast off; and thus, after the creature has escaped, the shell seems as perfect as the animal itself; but I could never understand how that broad flat surface inside each claw, could be got rid of without injury to the new claw; but by attentively watching the process in several instances, I observed that in the act of drawing out the new claw, the edge of it is cut through by these flat horny plates, but the divided parts of the shell, immediately close again, and speedily become so adherent as to preclude their being re-opened.

"I have observed another fact,—When crabs cast off their claws and get new ones, the process can take place only in the joint which is nearest the body: if any other be injured, they bleed to death; but if the nearest joint be removed, there is little blood

lost, and over the wound a thin film forms, in the middle of which is a tubercle. The common opinion among naturalists appears to be that the new claw immediately begins to form, and at the next casting of the shell, it is perfected, though it be small; but this is incorrect: when the old claw is separated, the scar immediately forms, and remains till the creature casts its shell. After the shell is cast, the tubercle in the centre of the scar suddenly enlarges, and under it may be discovered a small claw doubled on itself beneath the membrane of the scar: this remains in a soft state until the crab again casts its shell, when the new claw is set at liberty, is straightened out, and becomes hard and calcareous like other parts of the body; so that a claw, instead of being renewed and perfected at once, or at the first casting of the shell, is not so in reality until the shell has been cast the second time."

It is desirable that these facts should be made known to naturalists, either for confirmation or contradiction; and for this purpose I have gone a little out of my way to allude to them. Several communications have from time to time been made to the society on the subject of the metamorphoses of certain animals, but these have been intended rather to establish the fact, than to give particular descriptions applicable to each species. It is now proposed to describe the process in each particular species, and to illustrate the description by figures. Of this I hope we shall to-day see the commencement. Another object which has been kept in view in the past year has been a collection of marine worms, for the purpose of description and illustration. Of these, nearly ninety specimens have been already obtained; but the species and varieties are so numerous, that a much larger collection must be made before the work of classification and description be attempted.

One of our secretaries, to whom we are already indebted for much of our information on local *Ornithology*, has, in the past year, met with two birds believed to be new in Cornwall, the particulars of which we shall hear from himself. In *Ichthyology* also the report will shew some advance. I am not aware that I can speak of much progress in the other branches of Natural History in the past year. In fact, we want a few active labourers

to fill the place of some who have greatly served the society, but who have removed, or are about to remove from this district. The establishment of general and provincial Archæological societies has given such a stimulus to antiquarian research, that a new history of the antiquities of Great Britain will soon be required, and indeed is much wanted already. Glad should we be if some of the zeal and energy which actuates many of the members of those societies were in operation in our own county, for it would be a great mistake indeed to suppose that the subject of Cornish antiquities is exhausted, for an inscribed stone, not before known, has been lately discovered in St. Hilary. And here I cannot but allude to the loss the society, as well as her family and friends, have sustained by the death of Miss Matilda Millett, to whom, with her sister, we owe the models of almost all the remains of antiquity in our neighbourhood.

In conclusion I will mention a circumstance which may not appear of much importance. It will be recollected that, some time ago, an inscribed stone in the parish of Madron was thrown down, and was about to be broken up, as was reported, by the proprietor of the land. Although its destruction was prevented, obstacles were opposed to its replacement. Lately however the land has changed owners, and there will now, I hope, be no difficulty in getting it replaced exactly in its former situation.

REPORT.

ON the return of our annual meeting the council have again to report the continued activity of the society. As might have been expected, where so much is to be done, our past labours have been very general; spreading over all the subjects falling within the design of the society. But during the past year several of our members have been more than usually active in departments not commonly occupied by any but the great societies of the kingdom, and from our position, we have been very successful.

There have been but few antiquarian researches during the past year, but among other things there has been a stone arrow-headed celt exhumed from the submarine forest near the coast-guard station, Penzance. It is formed of a blue stone, and the shaft has evidently been cut so as to fix into a socket. It is somewhat rounded from being water worn, but its shape is very perfectly preserved. This specimen is the only instrument yet found in such localities.

In the natural history department much has been done, and several species have been added to our local *Fauna*.

ORNITHOLOGY.

In ornithology, the council are able to report the capture of several rare kinds.—Schinz's tringa, the hawfinch, and the white-fronted wild goose have been captured in Scilly, and the honey buzzard at Carclew, and the mountain finch was everywhere

abundant during the severe winter. Several specimens of the rose-coloured starling have been observed in the neighbourhood of the Land's-end, and the solitary snipe has been taken in Coldharbour-moor, Towednack; this the council believes to be the first recorded specimen captured in Cornwall.

ICHTHYOLOGY.

Among the rarer kinds of fish noticed during the past year have been the streaked gurnard *(T. lineata)*, the Spanish mackerel *(S. colias)*, the belted bonito *(P. sarda)*, and several specimens of the pilot-fish, which had followed vessels from the Mediterranean. Several specimens of the boar-fish have been trawled up from near the Runnel-stone during the summer.—The council would remark that it was from the same locality that so many specimens were taken several years since. Several specimens of the red band-fish *(C. rubescens)* have also been taken, but generally from the stomach of the cod. Both kinds of sun-fish have been taken in Mount's-bay: the oblong species *(O. oblongus)* is said to be rare, but two specimens have been observed during the last summer. Among the sharks, the thrasher, of which a figure was exhibited to the society last year, has been again taken during the past pilchard season.

CRUSTACEA.

Among the *Crustacea*, the council have to report continued success. The straightened *Hyas (H. coarctatus)* has been taken at St. Ives and in Mount's-bay. The rough *Euronyme* has also been found in Mount's-bay. The swimming crab *(P. Henslowii)* has been again as abundant this autumn as it was the year before, but the specimens were all males. A very fine specimen of the gulf-weed crab was captured in Penzance harbour during the last summer. It was laden with spawn: the specimen is now preserved. Several new species of *Mysis* have also been added to our list, and these the council hope, when they have been more carefully examined, will be described in the society's reports.

The council have also to remark, that varieties of forms to which

Crustacea are so liable have been somewhat fully examined, and several species which have been founded on these variations will have to be discarded. The council have also pleasure in stating that the development of the *Crustacea*, with regard to their metamorphoses, has been rather extensively observed during the past year, and the specific markings of the *Zoe* have been carefully noted and figured, and will probably appear in our annual reports.

The council, though it may incur the charge of reiterating an old source of regret, yet cannot refrain from again pressing on the attention of the society the necessity for providing more space for our museum. Our birds are badly and irregularly arranged; our fish are few and we have no space for more, and every other class suffers equally with these, while the beautiful models of our antiquities are so closely arranged, that they can never be seen to advantage. It is high time that something should be done, and the council trust that the society will see the necessity for fresh exertion in endeavouring to provide proper accommodation.

E. H. Rodd,
R. Q. Couch, } *Secretaries.*

Nov. 2nd, 1855.

Ornithological Notes.

By EDWARD HEARLE RODD, Esq.,

ONE OF THE SECRETARIES.

THE interval between our last annual meeting and the present has been productive of ornithological occurrences in this district quite worthy of notice. The severity of the last winter, almost unparalleled for extent and duration, caused a vast influx of birds, both of the land and water tribes, not only from the northern regions of Europe, but also from our own inland districts. Those of the thrush family were especially remarkable, and so concentrated were the redwings and fieldfares in the Land's-end district, after the frost had lasted some time, that even at Truro the entire absence of these birds, and nearly the whole of our common field birds, was the subject of observation. The common members of our wild fowl flocked in innumerable numbers to our district, but it was observed that there was not such an accession of the rarer *Anatadæ* as might have been expected. Woodcocks and snipes were everywhere to be found, and the former were observed, from exhaustion and famine, to be strutting about on grass plots adjoining coverts, and even close to houses, seeking for their sustenance like barn-door fowls. The intense frosts, after cementing all the more exposed ground, at last closed up all the avenues of the woodcock's sources of sustenance in warm sheltered valleys, when at last these, with other birds, were found often dead, always more or less exhausted, and with scarcely any flesh on their bodies. Amongst birds of unusual occurrence in this neighbourhood at that time were large numbers of the

mountain finch *(Fringilla montana)*, a species that seldom leaves the northern English counties except in very rigorous winters. In nearly all the farm yards in the neighbourhood of Penzance were these beautiful finches to be seen. During the past year the following remarkable birds have been noticed :—

The rose-coloured starling.. Land's-end, &c. ; four instances.
The solitary snipe ..... Cold-harbour-moor, Towednack.
(Not hitherto recorded in the Cornish *Fauna.)*
Schinz's tringa ..... Scilly.
Hawfinch ..... Ditto.
White-fronted wild goose .. Ditto.
Honey buzzard ..... Carclew.

An incident in Bee-politics.

By the Rev. J. PUNNETT, M.A., of St. Erth,

MEMBER OF THE SOCIETY.

WE have all of us heard and read a great many pretty things about bees;—their industry, "how they improve each shining hour;"—their political wisdom, "teaching," as Shakspere says, "The art of order to a peopled kingdom;"—their magnanimity, so that, in the words of another poet, "in their little bulk a mighty soul appears." But, notwithstanding all this fine singing of the poets, I fear we must acknowledge the sad truth, that they are a thievish, marauding, quarrelsome race of bandits: to use the language of an Arabian writer, more than a thousand years ago:—"It is the nature of bees to rob one another, and to fight with one another, and to sting whosoever approaches the hive." Of this we have had experience enough at the Vicarage of St. Erth, which appears to be the battle-field of the bees of the neighbourhood. Perhaps the attractiveness of the settlement invites them (and at this I am not astonished), or, what is more likely among a race of such low moralities, when right stands so poor a chance against might, the weakness of stocks has excited the rapacity of the stronger vagabonds around us. Certain it is, that, in the early spring of this year, our solitary family of bees was invaded by an unprincipled band of robbers. The consequence was, as might have been expected, the St. Erth bees, after maintaining for a long time, an unequal contest, gradually succumbed, till the whole colony met with an honorable

death, fighting *pro aris et focis.* Before we became aware of the final result, a week or ten days had elapsed; but, seeing no bees coming out of the hive, it was suggested that it should be examined, which was done by one of my sons, and we discovered that it contained nothing but a few dead bees and empty combs. The greater part of the combs were pulled out, and thrown about the garden, and the hive carelessly replaced upon its stand. On the 2nd of July, a few days after, one of my neighbours, who resides at the top of the hill above the vicarage, ran breathless into the garden, where my servant was at work, and said, "Henry, have you seen a swarm of bees come into the garden? (I should observe that there are no bees within a mile of us in that direction.) "One has just crossed the hill from the south country." "No," said the servant, "but we will soon see whether they have pitched anywhere." They immediately commenced hunting about the garden, for some time without success, till, upon coming to that part where the empty hive had been left, the mystery was solved; the swarm had proceeded, without settling anywhere, direct to the hive, and took possession of it, with as quiet consciences as the Russians occupied the Principalities. They remained quiet for the night, I suppose, to set all to rights in their new quarters; but early the next morning I went down to see them, and found them vigorously at work. So successfully and diligently had they pursued their labour (I hope with more honesty than their previous history would lead them to suppose), that when the hive was weighed by my sons two nights ago, the steelyard which they used, and which only goes to 24 ℔s., was not of sufficient range to give the weight of the stock. Having a very low opinion of bee honesty and morality, I have a strong conviction that this was not the first time that the present possessors of the hive had visited it: they were, I have little doubt, among the invaders in the successful attack on the St. Erth colony, and were a swarm thrown off by the stock of robber bees, who destroyed the original occupants of the hive. I am not aware whether it is usual for an untenanted hive to be spontaneously occupied by a first-rate swarm; but it would seem that there is some tradition on the subject: for, when

one of my labourers on the farm, a shrewd and observant man, was informed of what had occurred; his remark was, "That is just it. Master is liable to be fined by the justices; for there is a law against any man leaving an empty bee-butt upon a stand, to slock away his neighbour's swarms." I should like to know whether or not there be such a law, from some gentleman who, as is the case with your excellent secretary, combining in his own person the practice of the lawyer with the successful cultivation of the far more genial pursuits of Natural History, may be supposed to be deeply versed, not only in bee-lore, but also in bee-law.

Notes on the Botany of the Bosphorus and Varna.

By Lieut.-Col. CHARLES L. COCKS.

THE following are a few of the plants I have noticed in the neighbourhood of the Bosphorus and also in the neighbourhood of Varna: they are perhaps not much known, and may therefore prove of interest, though they are not very rare or particularly striking.

The tree which first demands attention in the Bosphorus is the Oriental plane, both on account of its large size and great beauty, and which is not sufficiently planted in England. Then there is the *Cupressus fastigiata* in the many miles of burial ground which branch out from Stamboul, Pera, and Scutari, in various directions. There is also the *Cupressus lusitanica*, forming, when old, a tree like the Cedar of Lebanon, and the only other pine I could find was the *Pinus pinea*, of which there are some good specimens. In the spring of the year the banks of the Bosphorus are very gay with the Judas tree *(Cercis Siliquastrum)*, as also *Erica arborea*, the white blossoms smelling much like our hawthorn. There are with it wild lavender and white and pink cistus, and *Quercus coccifera*, with the scarlet *coccus* blistering its leaves, explaining at once its name which had always puzzled me. This interesting little oak grows about like our furze, and about the same size. There is also sweet bay *(Laurus nobilis)* and privet, and the *Cratægus pyracanthus*, beautiful in berry in September. There are some pretty oaks, one bearing a lovely little acorn, looking as if it had been made for a lady's head-dress, another with very large acorns on a long stalk, hanging down very gracefully: both of

these are deciduous and grow to the size of apple-trees. There is also the *Quercus cerris*, though I never found one of a large size. The family of *Campanula* was well represented by some beautiful varieties, and I was delighted at finding the true damask-rose in a wild state (with a most delicate perfume)—a pale blush flesh-colour, and the foliage as if covered with an inpalpable powder. This was, with the yellow jessamine (*Jasmin revolutum*), scrambling in among the hedges which were mostly composed of *Quercus coccifera* and sweet bay and privet. In the autumn the ground was covered with wild peppermint, which was delightfully fragrant as we crushed it in walking over it. I must not forget the fine walnut-trees and terebinth, and some pretty varieties of the ash, or the *Arbutus unedo*, which grew in clumps amongst the lavender and heath and cistus. The only ferns I could discover were the *Pteris aqualina* and *Aspidium aculeatum*, and not a moss, lichen, or liverwort to be seen. The castor-oil plant was to be seen in many gardens, of about the size of an apple-tree, and in the Prince's Islands, near Stamboul, there grew some plants of acacia in appearance, and in flower almost exactly like *A. affinis*, except that the flowers were produced in September and had a strong aromatic smell. The Turks call it "Ambeer," and the Greeks gather the blossoms and tie them to sprigs of *Arbor vitæ*, and use them in the decoration of their churches; while the Turkish ladies place the blossoms among their clothes and linen as a "sachet." I must not omit to mention a fruit-tree of that country call *Acrania*, whether a *Cerasus* or *Prunus* I know not; but the fruit looks as if it was a hybrid between a plum and a cherry, or an elongated cornelian cherry. The foliage is much like our common spindle-tree (*Euonymus*); its stone is rather a long one, not flattened at the sides, and the flavour of the fruit is an astringent acid, making when stewed a delicious drink in fevers, and very useful in cases of diarrhœa from its astringency. Pears, fine quinces, very hard but good-flavoured chingstone peaches with bright yellow flesh, some fine-looking scarlet apples, magnificent water-melons, some good and some indifferent white and purple grapes, splendid tomatoes, and some rather large well-

flavoured pale strawberries I think complete my list of plants and fruits, except, of course, figs in profusion. In Bulgaria the plants and trees are all deciduous, except one *Smilax*, or something I may have mistaken for one of that family, being a climbing plant with sharp thorns and thick glossy heart-shaped leaves. The country is covered with a dense scrub of Christ's thorn *(Paliurus aculeatus)*, very gay, with its bright yellow blossoms in immense profusion, afterwards succeeded by its large peculiar pie-shaped seed-vessels: it would make a good hedge in England, from its pliant thorny branches being very short-jointed. Mixed with this were large bushes of *Rhus Cotinus*, with its beautiful marabout feather-like flower, giving a misty character to the shrubby plain. The whole country was like a vast shrubbery, and the sun shining on the flower of the *Rhus* was extremely beautiful. Intermixed with this were small trees of the hop hornbeam, the ash, and the oak, but hardly any of above twenty or thirty feet high, and entwined amongst it were wild bines,—our old friend the common traveller's joy, *Clematis*, which made the scrub gay beyond description where it wreathed itself about over the dwarf trees; and in other parts were beautiful white flowers of the convolvulus, of the size nearly of coffee-cups; and then small clumps of the brilliant *Lychnis fulgens* and yellow *Verbascum* of many varieties, one a very branching sort which I took to be *V. ramigerum*, looking like a shrub of common broom. Thorn-apple *(Datura stramonium)* there was in abundance, and the common centaury; and in the deep sand about Aladyn, where there were some excessively curious columns of sandstone, there grew, in pure sand, the pink *Elychrysum*, and small yellow everlasting, and a most lovely *Lithospermum* of pure ultra-marine blue, with a clear sharp white eye, the flowers growing in a small head almost like a garden verbena: unfortunately I was not there sufficiently late in the season to collect any seed, as I am led to believe it is new to English gardens, to which it would be a lovely addition. There were many varieties of the borage family. I could not succeed in finding a single fern, a lichen, moss, or marchantia. The birds were numerous and fine. *Aquila albicila*, the Royston grey crow,

white Egyptian vulture, black heron, white egret, the hoopoe, a pretty variety of jay, which I do not know, and the bee-eater, were amongst the most common.

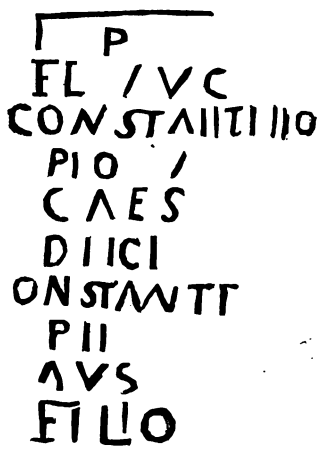
The following are a few notes on the columns of rocks at Aladyn, and of which I have my own idea; namely, that they formed a large cavern, the arches of which sprang from the enlargements which they all possess; and I feel this the more strongly, from finding a grotto (so to say) bearing out my theory. These columns are mostly in a hollow on a sandy rocky plain, though this group was on the border of a mass of scrub of *Paliurus* and berberry and *Rhus cotinus*. A much larger group was about a fourth part of a mile off, and this had the cavern which first led me to believe that they were the columns of a large series of sandy caves, of which the *overburden*—to use our Cornish phrase—had fallen through, and left the columns *in situ*. They were all more or less hollow, and of various sizes, and frequently near each other. They looked quite as if they were the remains of a temple which covered acres of sandy soil. Poor Lieut. Molesworth mentioned them in a letter to his mother, an extract of which Mrs. Molesworth sent to the Polytechnic at Falmouth; his idea was that they were fossilized trees: he died of the Varna fever in hospital at Malta. The colour of the stone was a grey drab, something like Portland stone, and the soil (sand) was gay with immortelles, both pink and yellow and blue *Lithospermum*, and a *Statice* very dry and wiry with small whitish flowers.

Notice of two Anciently-inscribed Stones found in St. Hilary in 1853.

By RICHARD EDMONDS, Jun., Esq.

THE inscription on the stones found at Hayle in 1843, of which I communicated an account to the Royal Cornwall Polytechnic Society, has been considered the oldest, or one of the oldest, in Cornwall; but it must now yield the palm of antiquity to that lately discovered in St. Hilary, which appears to be about two hundred years older.

The St. Hilary slab is of irregular form, about 4½ feet high, and 1½ foot broad, and nearly 1 foot thick. The rudely engraved inscription occupies 3 feet 10 inches of its height, and consists of ten lines, most of which is still legible as follows:—

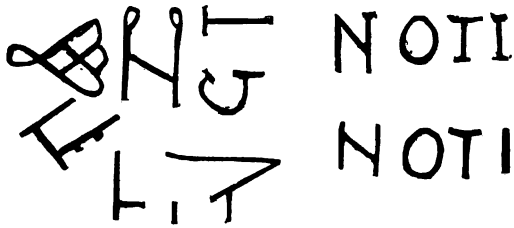


The first line is quite illegible. The second line would be FL IVL if the last letter were intended for an L instead of a C. In the third line the last two N's are less distinct than the other letters, and their cross strokes are quite effaced; the letter A also wherever it occurs is without its cross stroke. Omitting, therefore, the first line as altogether illegible, the remaining lines in words at length would be *Flavio Julio Constantino pio Cæsari duci* Constantini pii Augusti filio.* "To the Commander, the pious Flavius Julius Constantine Cæsar, the son of the pious Constantine Augustus." Flavius Julius Constantine, the eldest son by the second wife of Constantine Augustus, or Constantine the Great, as he is more commonly called, was declared Cæsar A.D. 317, the year after his birth; and A.D. 335, received from his father, Gaul, Spain, and Britain, as his portion of the Roman Empire. After his father's death, A.D. 337, he was proclaimed Emperor, and three years afterwards, A.D. 340, was killed in the war between himself and his brother Constans. I imagine, therefore, that this inscription to the younger Constantine was made between A.D. 335 and A.D. 337, during his father's life; for after his father's decease he would not have been called Cæsar, but Augustus, as the Senate and Roman soldiers had declared him Emperor Constantine the Second. The stone (a spurious sort of porphyry) appears to have been taken from a quarry in the neighbourhood, and may have been engraved by the direction of Constantine's soldiers then stationed in the Roman camp still to be seen in a good state of preservation at Bosense, within two miles E.N.E. of St. Hilary church; of the foundation of which church, this, and another inscribed stone presently to be noticed, formed parts, having been used as common building-stones for that purpose.

The other inscribed stone is of granite, and about 6½ feet long. The engraving forms two lines, running longitudinally and terminating near the centre of the stone, each line beginning with what

* Some have thought that the word in the sixth line was intended for *Divi* instead of *Duci*; but I think if it had been *Divi* it would not have been followed by *pii*.

appear to be symbolic characters, and finishing with the word NOTI. The symbolic characters of the upper line are very different from those of the lower, although the word NOTI follows them in each line. The entire inscription is very clearly engraved, and is as follows:—



In neither line is the letter N of the word NOTI the pure Roman capital with a diagonal cross-stroke; but in the first line the cross-stroke deviates towards a horizontal one, and in the second line it approaches still nearer to a horizontal stroke as in the letter H, the horizontal for the diagonal link being a corruption prevalent in the sixth century. This inscription may therefore be referred to the end of the fifth century, when the purity of the Roman letters began to be corrupted after the final departure of the Romans in the middle of that century.

The inscribed stones are now placed on the sides of the walk leading from the gate of the church-yard into the church, the former being near the church porch, the latter close by the gate.

The parish of St. Hilary (of the walls of whose church they formed parts) was in Domesday-book, says Hals, taxed under the name of Lanmigall (Michael's Church*), and its earliest church or chapel was in all probability anterior to that of any other in the kingdom; for in this parish is St. Michael's Mount, which was dedicated to religion as early at least as the fifth century.† The destruction, by an accidental fire, of the late old church of St. Hilary, with all its ancient carvings, and the tablet containing a

* Davies Gilbert's Corn., vol. 2, p. 169.

† Borlase's Antiq., p. 351, and Polwhele's Corn., vol. 1, p. 66.

copy of King Charles's letter "To the inhabitants of faithful Cornwall," occurred on the 25th of March, 1853, which was Good Friday, as well as Lady-day, and (what was equally remarkable at this time of the year) during an intensely cold night, while its roofs were covered with snow: the tower with the spire erected on it was the only portion that escaped destruction. Although this conflagration may at the time have been greatly deplored, there is now no cause to regret it, as the old church was in a very decayed state, and is now, through the munificence and influence of the vicar, the Rev. Thomas Pascoe, replaced by a handsome edifice of the middle-pointed Gothic style, agreeing with the architecture of the beginning of the fourteenth century, when the old tower, which forms part of the new church, is supposed to have been built.*

An interesting account of the old church and of its destruction, with an engraving of its steeple and bare walls after the fire, appeared in the "Gentleman's Magazine" for August, 1853, with two brief extracts from which I will conclude.

"'We have lost,' says the present vicar, 'many beautiful remains of a past age. The carvings which the axe of the Puritans had only partially mutilated, are, alas! totally destroyed; not a vestige being left of the open seatings of the reign of the seventh Henry, enriched as many of them were with heraldic and other devices, as well as with the roses of the rival houses of York and Lancaster. The humiliation, passion, and crucifixion of our blessed Lord, were told in a series of carvings, beginning with those of the basin, ewer, and towel.'"

The next extract is a highly graphic description of the fire. Before I quote it, I must state that the spire, being an important sea-mark, used to be kept *white* with lime.

"'A more awfully beautiful sight,' adds the same gentleman, 'it would be impossible to imagine than the destruction of this

* This was probably about A.D. 1313, when by "the confirmation of the endowment to the vicar, the dead of Marazion were for the first time allowed, from the danger of passing with them to the Mount, to be buried at St. Hilary. (Drew's Corn., vol. 2, p. 331.)

pile, set as it was in a frame-work of snow-clad venerable trees. Its own spire, from base to summit, vied with the same pure substance, glittered like silver in the rays of a brilliant cloudless morn. From the excessive dryness and nature of the wood, there was no obscuring smoke within, which was one glowing vault of fire, in which every pillar, nook, and seat, and text on the wall, was distinctly visible, the south window being burnt out, and the great door thrown open and on fire. It was the saddest and sublimest sight I ever saw.' "

The editor thus concludes :—

" No apology can be due to our readers for giving the above extract from a letter to a friend, written soon after the event by one who had ministered in that place thirty-nine years, and was suddenly called up at midnight to witness the destruction of his beloved church."

Notice of a capture of a new species of Palæmon.

By RICHARD Q. COUCH, Esq., M.R.C.S.L.,

SECRETARY AND CURATOR.

AMONG a few of the rarer forms of the *Decapod Crustacea*, lately received from Polperro, is a specimen of prawn differing from all those hitherto recognised as British, and, so far as I have yet ascertained, from any previously described: it very closely resembles the common prawn in general outline and character, and is quite equal to it in size, but yet differs from it in some important particulars.

Palæmon.

Sp. ch.—Rostrum very short, stout, and triangular, with three teeth above, one of which is on the carapace; none below.

Habit.—Caught at Polperro.

The specimen is about 3½ inches in length, and is perhaps not quite so full-bodied as the common prawn, but which in general appearance it very closely resembles. The rostrum is very short, not extending beyond the basal joint of the internal antennæ: the upper edge of the rostrum has three stout denticulations, one of which is on the carapace, and is more widely separated from the others than those on the rostrum; on the lower edge there is no tooth. The carapace is smooth, roundish, and rather more than one-fourth of the entire length of the animal. There is a spine above and below the base of the internal antennæ; the upper one is the largest: the eyes are large, round, and prominent. The internal antennæ arise close to each other, and almost on a level

with the upper surface of the antennal scale: the three filiments are sufficiently long to extend about one-third of the length of the body; the shortest arises in connexion with the external one, while the internal arises separately. The external antennæ are very long, being about one-third as long again as the body. The antennal scale is as large as that of the common prawn, quadrangular, sides nearly parallel, and the angles slightly rounded, the inner margin fringed with hair. The first pair of feet very slender, commonly flexed; wrist much longer than the hand: the second pair longer and larger, extending slightly beyond the termination of the scale; hand much longer than the wrist: all the others simple and slender. The terminal joint of the abdomen of equal size throughout. The colour is of a translucent brown: caudal laminæ hirsute.

Notice of the capture in Mount's-bay of Planes Linnæana.

By RICHARD Q. COUCH, Esq., M.R.C.S.L.,

SECRETARY AND CURATOR.

THE occurrence of this species of *Grapsus* in Mount's-bay is well worthy the attention of this society, not only from its extreme rarity as a British species, but also on account of the probable source from whence it was derived: there are three specimens in the British Museum, which were placed there by Dr. Leech; these were probably obtained from the Devonshire coast, and are all I believe that can be said to have been recognized on our shores, though I think there is a specimen in the Museum at Plymouth. Some of the smaller specimens which have been shown me as belonging to this species, and which have been taken both in Cornwall and Devonshire, have, on examination, turned out to be the young of *Carcinas Mænas*, just as it has begun to assume the adult specific markings: such specimens I have frequently captured in Mount's-bay among the tangle at the roots of the *Laminaria digitata*, and have afterwards reared them into the full adult characteristics. The very fine specimen which I obtained last summer was found within the harbour, and crawling up the sides of a collier lying near the pier. From the notices of its capture therefore, and the long intervals between them, it cannot, I think, be considered as really a British species in any other light than an occasional visitor. If its appearance was regular it might be considered as an established portion of the *Fauna* of Cornwall, or if it appeared in flocks it might be looked

on as a migratory species; but inasmuch as it occurs singly and after long intervals, its occurrence must, I think, be considered in some measure accidental. It is chiefly found as an inhabitant of the *Sargasso*, or gulf-weed, found in such enormous fields by navigators crossing the Atlantic; in this weed they live and die, and so far as I yet know, are found constantly only there. This weed floats about in the ocean without any attachment to the bottom, and gives shelter to great numbers of minute fish and *Crustacea*. Sloane, however, mentions one species as being found on the *Sargasso* and other marine plants on the northern side of the island of Jamaica; and he adds, "Columbus finding it alive on the *Sargasso* floating on the sea, concluded himself not far from land, in the first voyage he made on the discovery of the West Indies. The fields of *Sargasso* in the Atlantic are drifted to their present position from the shores of the West Indies and surrounding main land, and with it are probably drifted the floating crabs now found in it. As this species of *Crustacea* is certainly not an inhabitant of our shores, the specimen which I procured must have been drifted from the Atlantic, and probably by means of the gulf-stream. It is not at all uncommon to find, in the summer, fragments of the gulf-weed at low-water mark, on the eastern shores of Mount's-bay, as well as nuts, canes, &c., which may, however, have been thrown overboard from some ship: but as we are also occasionally visited by West India fish, especially of the shark tribe, it seems very probably that we are sometimes visited by branches of the gulf-stream. I know it is laid down in charts that the limit of the gulf-stream is much to the south of the Cornish shores; yet, from the tropical products which are not unfrequently washed up, it appears as if it extended much further north. The indications by thermometer are not very decisive either way; but yet the water of Mount's-bay frequently varies two or three degrees in the course of a few days, which, as water is a bad conductor of heat, can only arise from a warmer stream mixing with it. This crab was captured in June; it is a female, and is laden with spawn. I kept it in my glass tank hoping to get some of its young, so as to be able to lay

before this Meeting a figure and description of its *Zoe* condition, but it died in about twelve days without spawning, and I have now preserved it in my collection. The specimen is about eight-tenths of an inch in breadth, and about nine-tenths of an inch in length: the carapace is nearly quadrangular, with the sides rounded or arched, and contracted posteriorly: the surface is smooth, and slightly inflated or rounded and depressed: the eyes are widely separated from each other, and the intervening front is gently waved and smooth: at the external canthus of the eye is a spine, and almost perpendicularly below is the rudiment of another; the front is compressed into a margin, but on a level with the eye it slightly rises: in the centre is a gently depressed but very well defined furrow; on either side of this there is a small arch, with another depression half way towards the orbit. The general surface is smooth, but on the posterior portion of the branchial region are several faint striæ arching centrally and posteriorly; the orbits are open above, with a strong spine at the external canthus: the external antennæ are small, and lie in a fossa of the orbit. The first pair of claws are large, equal, and smooth: the arm is distinctly denticulated on the anterior, and slightly so on the inner margin: the wrist has a tooth on its inner and outer angles: the hand is smooth and inflated; the fingers are slightly incurved and fixed, one being in a line with the margin of the wrist, while the upper one is long, and curved downwards to meet the other: the other claws are moderately long, deep, and much compressed, the upper margins of the last three joints fringed with short stiff hairs, the lower margin of the last joint and the next are supplied with sharp spines. In colour the specimen was of a light vandyke brown, mottled with light-brown and light-green, with patches of a deep rich redder brown. During the fortnight I kept it alive it appeared to be very inactive, rarely moving unless irritated or removed from shelter. It generally selected the corner of the tank, and beneath a stone, as its resting place, and I think it died in consequence of being exposed to the sun for a whole day: the species is a very interesting one, and is the first and only Cornish specimen which has fallen under my notice.

Notice of a Whale captured in Dartmouth Harbour on the 18th of February, 1856.

THE animal in question was the Razor-backed Whale, or Pike-headed Rorqual, (*Balæna Boops* of Linnæus, *Rorquälis Boops* of Cuvier,) the largest of all the whale tribe, sometimes attaining the enormous length of one hundred feet. The specimen captured in Dartmouth harbour last February was a young one of this species: its dimensions were 18 feet 5 inches long, 3 feet in greatest depth, 4 feet 9 inches wide across the tail; lower jaw 4 feet 7 inches in length; length of pectoral fin 2 feet 4 inches by 8 inches wide; height of dorsal fin 9 inches; distance of dorsal fin from tail 6 feet; estimated weight upwards of two tons. It was a remarkably handsome fish, devoid of anything offensive to the eye, in the shape of slimy matter, or to the nose in smell. The back was of deep bluish black, resembling polished marble, the belly beautifully white, the two boldly commingling along the sides, with but a slight shading off of the back. The remarkable longitudinal lines or furrows, commencing between the eye and the pectoral fin, and gradually extending themselves from the latter to the extremity of the lower jaw, were about 2 inches deep throughout most of their length, terminating abruptly in their depth on the belly, but gradually becoming more shallow as they were prolonged towards the lower jaw. On separating these folds, their bottom and the lower portion of their sides were found to present a series of minute folds running parallel with the larger ones: when viewed from the surface, these folds were about 1 inch apart. Their use appears to be to enable the animal to take a large quantity of water, and consequently of food,

into the mouth without putting the skin of the lower jaw on the stretch. The sides of the upper jaw were lined with whalebone, arranged in plates closely packed together, having their inner edge, or that portion presented to the tongue, fimbriated or fringed, the fringe consisting of fibres of whalebone about the thickness of horse-hair. The longest of these plates, commencing at the corner of the mouth, was about 6 inches long and 1 inch wide, gradually diminishing in length and width until they reached the angle of the jaw, where they were about three inches long, and little more than bristles in substance.

The lower jaw projected 3 inches beyond the upper; hence the name of pike-headed. The tongue, firm and elastic to the touch, lay about 2 feet back in the mouth, and when handled, communicated neither moisture nor smell: the tip of the tongue was not more than 2 inches free; so that it had quite a tongue-tied appearance. When the animal was turned on its back, and the lower jaw separated, the skin between the tongue and the angle of the jaw fell down in a fold at least 18 inches deep: this looseness of the sublingual integuments would enable the animal to bring its India-rubber-like tongue in contact with every portion of the whalebone fringe, and thus effectually crush every portion of its food, which is naturally of a gelatinous character, and abounds in the northern seas. The creature feeds in this way:—the mouth is opened, an immense mass of water and *Medusæ* enter, the jaws are then closed, and the water, aided perhaps by the action of the tongue, is forced out through the meshes of the fringe, where the smallest portion of even gelatinous matter would be readily retained. The gullet or swallow is extremely small, as would be anticipated from the soft or semi-fluid nature of the food.

The whole body was remarkably firm and elastic to the touch, so that even when stood upon by several men, no greater impression was made than if standing upon vulcanized Indian-rubber. The presence of the dorsal fin separates these animals from the true whales, and they have consequently received the name of Fin-fish, or Razor-backed Whale, and also of Runner, from the speed of their movements. Though they attain a very great size,

and are common on the coast of Shetland, yet their strength and activity are such that they are seldom hunted for their blubber. This class of animals (the whales) have little in common with fish, except that they live in water: they have no gills with which to separate the air contained in the water, and consequently they require to come to the surface to breathe, having a heart and lungs similar to quadrupeds: they also suckle their young, and attend them with the greatest care and affection.

The specimen here described was left at high-water on the mud, about two miles within the mouth of Dartmouth harbour, where it was found by a peasant early in the morning. It was then nearly dry, and he prudently thought that if he left it alone "it would die of itself" for want of water; but on visiting it again eight hours later, he found it as lively as ever. He tried to stab it with a knife, but found that he could make little impression on it: he then procured a large bill-hook, with which he cut it to the depth of more than a foot across the back of the neck, dividing the large vessels, which bled profusely. Upon this, to use the man's own words, the creature got into its "flurry," and drove the mud up a great height by the blows of its tail, until death put an end to the struggle. The man took it for a shark, and thinking it of little value, sold it for a few shillings: the fortunate purchasers, after exhibiting it at Dartmouth, removed it to Totnes, and from thence to Exeter and Bristol, realizing on the whole a tolerable sum of money.

Notice of the occurrence in Cornwall of that rare Zoophyte, Retepora reticulata.

By RICHARD Q. COUCH, Esq., M.R.C.S.L.,

SECRETARY AND CURATOR.

THE following is a description of a specimen of *Retepora reticulata*, which I recently procured from deep water off the Scilly Islands. I can speak with certainty as to its great rarity in Cornish waters; and, judging from the very brief and imperfect description of it given by Johnston in his "British Zoophytes," I conclude it is equally rare in other parts of the kingdom, or that it but rarely falls to the lot of a naturalist to examine. It was first noticed as British by Borlase, and he has figured it in his "Natural History of Cornwall;" by him it was communicated to Ellis, who published a figure and short description in his "Essay on Corallines," about three years before Borlase published. Since that time I believe no other Cornish specimen has been obtained till now. My specimen was hooked up in fifty fathoms water, growing to a boulder of rounded slate, in company with *Tubulipora patina* and *T. serpens*. It is about three-quarters of an inch in height and width, and about one inch in its longest diameter, It is calcareous, white, foliaceous, shortly pedunculated and funnel-shaped; the polypidom is pierced with numerous oval openings, quincuncially arranged, having their longest diameter in the axis of growth. The cells are confined to the upper surface only. It is a very light and very pretty species, and in its dead state is of a pure silvery-white colour. The peduncle is rather small, and attached by a slightly-spreading base. As it rises from the base it immediately spreads out into its waved

foliaceous expansions, assuming a funnel-shape form, with the free margin very unequal and much convoluted. The oval openings which every-where perforate the polypidom, are produced as the natural result of the peculiarities which characterize the mode of branching. As the calcareous parts ascend from the peduncle, the branches, which are short, arise in pairs and diverge from each other. This diverging brings two neighbouring branches into contact, and they then unite, leaving an open oval space between. The cells, which are confined exclusively to the upper surface, are long, tubular, and immersed throughout their whole extent, except near the oral apertures, where they are more or less free and semi-erect. The apertures of the cells are round and armed with one or two stout spines, which give the surface of the coral, when viewed laterally, a rough appearance. The cells are arranged on the branches either quincuncially or in twos and threes in oblique lines across. The under-surface of the polypidom is plain, being marked only by lines which indicate the course of the cells above. The specimen examined, so closely resembles the figure given by Borlase, that no doubt can be entertained but that both must be referred to the same species; but I am inclined to think a little confusion exists in authors respecting this and a kindred species which perhaps it may be difficult to remove on the evidence of a single specimen, though I have had an opportunity of comparing it with *R. Beaniana*, which it most resembles. The synonyms which appear to belong to this species, so far as I have yet examined, are—

Retepora eschara marina. Ellis' Coral. p. 72, pl. xxv. fig. d, D.

Millepora retepora. Borlase, Nat. Hist. Corn. p. 240, pl. xxiv. fig viii.

„ *reticulata.* Lin. Syst. Nat. 1284; Ellis and Soland, Zoop. p. 138.

Retepora reticulata. Flem. Brit. An.; Stark's Elem. vol. ii. p. 435; Stewart's Elem.; Couch's Fauna, p. 130, pt. 3; Johnst. Brit. Zoop. p. 353.

Dr. Johnston has quoted, at p. 353 of his valuable work on "British Zoophytes," Mr. King's remarks on *R. Beaniana*, in which he says, "In the Mediterranean coral the interstices of the celliferous surface are furnished with strong hook-shaped processes curving

upwards, generally two on each side of the mesh;" and he adds "nothing of the kind is seen in the British species." This last is, however, a mistake, as the hooks are to be found on the side of almost every mesh in my specimen; but the hooks are nothing but the labial spines of the cells, which are thrown into distinct relief by the branches rounding off towards the oval interspaces. The spinous character of the mouth does not arise, as in *Discopora hispida*, from the unequal growth of the cell, but constitutes a distinct appendage, for the polypidom does not increase in thickness with age, as in some of the *Tubuliporidæ*, but simply enlarges in its flat surface. In this respect its mode of growth resembles the encrusting *Flustras*.

Particulars of some of the Habits of the Dipper (Cinclus aquaticus).

By JONATHAN COUCH, Esq., F.L.S., &c.

MEMBER OF THE SOCIETY.

AS the dipper, or water-thrush, is commonly found to confine itself to solitary places, far from the busy hum of men, it is not easy to imagine a reason why it should at any time so far forget its accustomed shyness as to take up its residence and rear its brood very close to, and almost in the midst of, a rather considerable cluster of houses, the residence of about a thousand inhabitants. Such a circumstance, however, has happened, and has afforded me the opportunity of recording the following notes of the proceedings of a pair of these birds under such novel circumstances. For a year or two before the date to which I particularly refer, these birds were observed to be frequently at lower stations than usual on our small rapid trout stream that runs through the town, and in each instance they reared their young in safety. After this I received information that a nest had been formed on the banks of the river, in a situation where I should least have supposed, and I proceeded to examine it. I found it on a large stone overhanging the only depth into which, for a long distance, the birds could plunge immediately from the nest and be covered with the water. It was formed of moss, but the bottom was the bare stone; and much skill had been employed to remove suspicion, by causing the straggling brambles to grow over it, and even by scattering, and interweaving with the structure, some dead pieces of the stems of the bramble. The young had escaped, and in doing so had been observed to shuffle themselves over the border of the stone into the water below, into which they sunk as they scrambled away from sight. It appears surprising how these birds

could have come to this nest at any time without being discovered by boys, who swarm in the neighbourhood, and whose prying eyes might have been supposed to have soon traced out their retreat, however well concealed by overhanging bushes. To approach the nest, perhaps, sufficient vigilance might be employed, by watching the occasion when these boys are engaged elsewhere; but to quit the place unobserved must have been attended with considerable difficulty. My informant was aware of this, and kept watch accordingly, and as he is one of those persons, so often found in the country and so useful to a naturalist, who is fond of observing Nature, with a true eye to discern circumstances, I have no hesitation in adopting his narative, to secure the accuracy of which no time or attention was thought too much. When the bird left its station, instead of flying along the brook it was observed to rise perpendicularly to almost the height of the hills close by, and consequently to the elevation of about three hundred feet, and from thence it either flew away at an angle or decended in a sloping flight to some other part of the Coomb. Its entrance to the nest was probably secured in a different manner; but it is scarcely possible to think of a measure better calculated than the former to effect the object without attracting observation. The observer informs me that, early one morning in August, his attention was excited by one of the birds, as it was engaged in catching young eels that, as is usual, were ascending the stream. One of its wings was stretched out in the flowing of the river, so as, in some degree, to form a breakwater in the shallow. An eddy was thus created, and when an eel swam forward to the slack water, the bird immediately seized and swallowed it. This action was observed on several occasions in different parts of the stream, the wing being extended against the course of the current in every case. It has been remarked that the dipper and the kingfisher do not keep in the same streams, but which it is that drives the other away seems uncertain.

Remarks on Henslow's Swimming Crab (Polybius Henslowii).

By R. Q. COUCH, Esq., M.R.C.S.L., &c.

SECRETARY AND CURATOR.

THIS very singular crab has hitherto been considered very rare in the British seas, and its habits, if not altogether unknown, have at most been but little observed. Bell says it is very local in its distribution, and probably nowhere existing in great numbers. It was first discovered by Professor Henslow on the north coast of Devon in 1817, where it was captured in the nets employed in the herring fishery in the early autumn; from that time to the present a few have been taken both on the Devon and Cornish shores every year: on the Cornish coasts they are more numerous on the western than on the eastern shores; they are, however, comparatively much less common in the northern waters (extending from Hartland point to St. Ives) than on the South, reaching from Plymouth Sound to the Land's-End. But they are sometimes common; yet most frequently a few only are captured during a whole season of the pilchard fishery, which extends from June to September; but, from my notes relating to the captures of this species, I am inclined to think that their apparent rarity is, in a great measure, accidental, depending more on the localities in which the pilchard is taken than on the absence of the crab: I find, for instance, that when the boats fish near the shores or in the sheltered bays, my captures are rare, and during some seasons, when the pilchards are close to the shores, I have been unable to procure a single specimen, and in proportion as they go into the deep water the captures are more common. But even when fishing in deep water the seasons are not equally productive, depending probably on the early or late character of the season, or the nature of the tides, and some years seem to be more prolific than others; but still they are always most abundantly found

in deep water, and at considerable distances from the shores. In the years 1855 and 1856 the late summer fishery was carried on many miles from the shore in a south-western direction, in the waters of the Lionessa, between the Scilly Islands and the Land's-end: from these localities I obtained great numbers every night; in fact, they became at last so abundant that they almost ceased to be interesting. In order, however, to ascertain the probable number taken, one young fisherman, who feels sufficiently interested in Natural History to bring me everything he considers rare, promised to secure for me the whole captured in his boat; this he did, and for about eighteen days I received from one hundred to one hundred and fifty every morning, and on two occasions the number amounted to more than four hundred. If this can be considered as the average capture of all the boats, the sea must have been swarming with them, for the boats of Mount's-Bay engaged in deep-sea fishing are more than two hundred, and to these must be added the fleet from St. Ives, for to the west of the Land's-end it is a common fishing-ground. I inquired of the crews of a great many boats whether they had taken any, and they all united in stating that they were so abundant as to injure the pilchard fishery. It is altogether a deep-water species, it is very rarely indeed, if ever, found near the shore, and I have never seen it washed up after a storm, and only occasionally have I found it among the trawl-refuse. Most of the specimens that I have examined have been captured, either by the hand as they swim at the surface, or in the pilchard-nets at all depths from the surface of the ground. This is the most natatory of all our crabs, which might be expected to be the case, from the oar-shaped character of all the legs. The drift-net fishery allows the nets to drift with the tide as a floating wall, and these crabs are almost always captured on the eastern side, showing therefore that they are arrested in a westerly migration. I regret that we have no spring fishery, that it might be ascertained whether there is a return migration. All the specimens that I have seen are full-grown adults, and what is still more worthy of notice, all are males; out of several thousands I did not discover a single female, so that this species not only migrates, but it is the

male alone that does so, so far as my observations go. If the females and males migrate in separate flocks, some of both sexes would be most probably taken, where the boats are so numerous; but every season produces the same result; the males alone being taken. But, from the size of the specimens taken, they are no doubt adults, and are much larger than one season would permit. It may therefore become a subject for enquiry, whether all the males, young as well as old, migrate, or whether the migration is confined to the adults. The females apparently remain in the shallow water of the channel, and the males must in some way or other return to them in the early spring. Probably, however, as in other species, impregnation takes place one summer, while the ova are shed the next. This point, with many others equally interesting, I have ascertained by direct experiments, and in the lobster, while one set of ova are being shed others are rapidly developing themselves in the ovaries, to be impregnated after the shedding has been performed. During the period of what may be termed gestation, there is no exuviation, but generally within thirty hours after the ova have been all cast the shell is thrown off, and then most commonly impregnation takes place; but if the female be not impregnated, exuviation occurs very frequently during the spring, summer and autumn, varying with the age of the specimen. During the years 1855 and 1856, I kept several specimens alive in my tanks, for the purpose of watching their habits: for several days they kept quiet at the bottom, rarely seeking the shelter either of the stones or sea-weed, and even when stirred they seemed so sluggish that they rarely did more than just move out of the way. On placing a little sand at the bottom, they soon made an excavation, and sank into it, partly covered; towards the evening, however, or if the day was dull, they became more active, crawling rapidly from spot to spot. Sometimes they would creep on the stones and launch themselves off the edges, and at others they would elevate their bodies either against the glass or a stone, and rapidly vibrate the posterior claws; by this they rapidly rose to the surface, and in rising all the claws were frequently in motion; but in their progress, whether round the tank or obliquely, either

in ascent or descent, the claws anterior in progress were the only ones used, the posterior ones being merely stretched out: the claws most effectively employed were the posterior two, and hence in progression the posterior part of the body became more elevated than the front. They swam with ease and rapidity, and would continue in motion for hours in a subdued light. Like most other *Crustacea*, the chief part of their movements takes place by night: I have occasionally, by irritating them, forced them into activity by daylight, but their efforts soon cease, and they again sink to the bottom. They are very voracious, as well as active, seizing on the pollack, cod, and even mackerel, but they do not refuse dead food, as they devoured very eagerly bits of whiting which were given them from time to time. Although this species is so very active in its habits, and apparently voracious in its appetite, and is the natatory of all British species, it would seem that they occasionally may be said almost to hybernate, as in some specimens dredged off Scilly during the latter part of winter the back was covered with minute corallines and *Serpulæ;* but during the summer, and during the migratory season, the shell is smooth and clean. The general colour is a light fawn flesh-colour, inclining occasionally to a brown, and in some specimens to a black-brown colour. Several of the specimens while under examination passed through the process of casting their shells, and this was attentively watched: the general mode in which it is effected is precisely the same as in *Carcinus Mænas.* When the process has begun, the crab retires to the shelter of some overhanging rock or imbeds itself in the sand, and becomes entirely helpless; the posterior margin of the carapace gets lifted, and a soft substance protrudes through the opening: this increases, and the carapace gets more and more elevated, the waved margin or suture in front gets loose, and the body is drawn gradually out. Several of these perfected the exuviation in my hand, and, on immediate careful examination of the claws, I found that Réaumur is quite correct in saying that all the claws have a longitudinal slit, to allow of the escape of the broad internal muscular plates; these semicalcareous plates have their fixed part placed distally, their proximate surfaces being free, and affording wide attachments to

the muscles of the limbs: in casting their shell these are left behind, which is done by their dividing the edge of each claw longitudinally: this is not only the case in the present species, but also in the *Maia*, in which it has been said not to occur. Immediately they escape from the shell, I have been enabled to separate the edges with a pin on all occasions; but in the course of ten minutes the surfaces become so intimately united as to present no traces of such a fact,—no line, no furrow, nor even a shade whereby the situation of the fissure could be detected,—the shell is entire in all its parts. From Mr. Gosse's remarks, that "neither were the shells split to afford a lateral passage for the limbs," &c., I suspect he has mistaken Réaumur's remarks. The shells are split in no part, but the soft claws of the escaping animal *are*, as, from the circumstances of the case they must be, for how else could such broad disks be drawn from the inside of a claw? In examining the large kind of *Crustacea* in various stages of preparation for the moult, I find that these large muscular disks undergo a change on both surfaces: the muscular masses are less firmly attached, and this becomes so apparent, that, besides becoming more fluid, they are found to be attached to a stout membrane, between which the solid plates lie, and from which in exuviation they are drawn out: these two membranes finally fall together and form the new plate, by subsequent consolidation.

Cornish Folk-lore.

Chap. iv.—Tregeagle.

By THOMAS Q. COUCH, Esq.

LITTLE to the north of St. Neot's church, in East Cornwall, is a melancholy moor bordered by rough granite tors. The rude cottages, scattered sparsely over the landscape, are such shapeless heaps of unhewn granite, that, at a distance, and when not sending up their wreaths of smoke, they give little more evidence of human neighbourhood than the wonderfully poised piles which crest the hills around. On this bleak marsh is a lonely mountain tarn filled by the drainage of the moors, and having until of late years no visible outlet or inlet.

> "Dosmery poole amid the moores
> On top stands of a hill;
> More than a mile about, no streames
> It empt, nor any fill."

So says or sings Carew, who gives what is still the belief of the country side, that it ebbs and flows with the sea, and, so deep is it, that a fagot once thrown in was sucked down by a central whirlpool, and after passing among the bases of the hills, was taken up in Fowey harbour. It avails little that some matter-of-fact persons have, by actual experiment of sounding, sought to destroy this old and well-established fact. No finer picture of savage desolation can be imagined than this spot, in some of its aspects, presents. On a lowering November day, when the gusts are driving the rain-clouds across this desert, and soughing among the rushes and

bent grass, and when the low of the half-wild herds is mingled with the plaintive whistle of the curlew, it looks like a bit of primitive barrenness, untouched save by the wild workings of the elements. It will be expected that a spot so weird and wild will not be without its grim and awful story; accordingly we find it especially associated with the deeds of giant Tregeagle. When travelling over this neighbourhood, some few years ago, I gleaned, from oral tradition and written record, all that was known of his story, and as it well illustrates the influences at work to modify and debase popular fable, I have thought that my notes might be worthy of a place in the Reports of this Society. It will be well first to give the ordinary and current book-versions of the legend.

Tregeagle was steward to John, Earl Radnor,* of Lanhydrock. He was a very wicked man, who by craft and cruelty became very rich and powerful. Neither pity nor remorse checked him in his avarice; indeed, some say that the curse of blood rested on his ill-gotten gains. With all this, however, riches flowed in too slowly for his longings, so, for present advantage, he entered into a compact with the Evil-one, whereby for a certain time his wealth and influence became unbounded, and his greed and tyranny growing with his means, he did such deeds as made him the bye-word of after generations. In the midst of his enjoyment of his power the Devil claimed the forfeited soul. As the price of the unholy bargain he finds no rest, but is bound to the fulfilment of some endless task, such as the baling of this ever-filling pool with a limpet-shell, varied by his binding the shifting sands of the northern coasts into bundles with bands of the same material. Every now and then he is disturbed in his hopeless labour by the persecution of the insatiable fiend, from whom he flies over moorland and hill tracked by the remorseless hunter and his hell-hounds, and finds respite only when he can get a temporary shelter in the chapel of St. Michael on Roche rock. The howls of the harrassed Tregeagle are often heard by the belated hind, and "he roars like

* Michell's "History of St. Neot's," p. 58.

the great Tregeagle" is the common exclamation of the Cornish mother of her screaming child.

Another story, still more terrible, is related of him. Some time after Tregeagle had disappeared from amongst men a tenant of the Earl was sued by the new steward for arrears of rent The sum, it seems, had really been paid, but Tregeagle had not given credit for it in his books. At the trial, the supposed debtor contrived by glamour to raise the spirit of Tregeagle and present him as a witness in the court, and by the evidence produced the plaintiff was nonsuited. * "On retiring from the bar this singular witness was left behind in court; the defendant being requested by some gentlemen of the long robe to take him away: but he sternly replied, that, as he had been at the pains of bringing the evidence, those who complained might take the trouble to remove him." The spirit of Tregeagle was with difficulty exorcised; and, "as perpetual rest was deemed impossible, some work of extreme difficulty was thought necessary to furnish his spirit with employment," and his task was the *lading* Dosmery pool with a limpet-shell and trussing the northern sands with ropes of the same.

The story, of which the book version is here given, presents many points of interest, and has an important bearing upon the historic value of legend in general, and the mode in which it becomes altered and vitiated. In looking into the history of this fable, I may remark, that, because Carew, in his "Survey" (temp. Eliz.), and Hals, in his "Parochial History" (temp. 1736), make no mention of Tregeagle, we are not to conclude that such a story did not exist in one of its earlier versions. Little trust is, in these matters, to be placed in negative evidence, as it is only until lately that our popular tales have been looked upon but as "unconsidered trifles." The circumstance that Tregeagle is stated to have been steward to John, Earl Radnor, permits us to fix the date of the legend, or rather of its latest modification. Robartes of Lanhydrock was made Earl Radnor by Charles II. in 1679, and Tonkin, in his description of the parish of St. Allen, gives some

* Hitchins and Drew's "History of Cornwall," vol. i. p. 71.

particulars respecting the Tregeagles connecting them with this nobleman, and offering some curious confirmation of this strange story. He tells us that Sir Richard Roberts, afterwards Lord Roberts, possessed the manor of Bosvellick towards the latter part of Queen Elizabeth's reign, and that John Roberts his son, first Earl of Radnor, "was nursed here by Mrs. Tregeagle, the daughter of Degory Polwhele, Esq., and wife of John Tregeagle, Gent., who held a lease of the estate from Sir Richard Roberts. And this was the rise of the Tregeagles, for John Tregeagle their son, being foster-brother to the said Earl, was afterwards by him made his *chief steward*, and brought forward in the world." A John Tregeagle, probably the same, was sheriff of Cornwall in 1695, and twice represented Bossiney in parliament. The fall of the Tregeagles was as rapid as their rise, for Hals says that the sons by ill-conduct wasted and sold all their lands, temp. George II. It may be asked, Is their any warrant for the blot on the scutcheon of Tregeagle—any circumstance to show that his name is justly sent down to posterity with the brand of infamy and mark of blood upon it? It is a remarkable fact that the scandal-loving Hals makes no mention of tyranny or crime in connexion with Tregeagle, which it is probable he would have done had there been any great occasion, since the very completion of the publication of his History was prevented by the free way in which he handled the private history of many of our county families, and the consequent withdrawal of their patronage. The modern legend may, however, be held as bearing some evidence that John Tregeagle was, at least, a harsh and arbitrary man, and there is one authority which represents him as cruel and severe. We find, from an interesting narrative * communicated by Moses Pitt to Dr. Fowler, Bishop of Gloucester, that there lived in the 17th century, in the parish of St. Teath, a woman, Ann Jefferies, who was under the delusion that she was visited and fed by fairies, who conferred on her the power of curing diseases. This was so generally believed that multitudes of sick people repaired to her from all parts, from

* Reprinted in C. S. Gilbert's "Survey of Cornwall."

Land's-end, and even from London. The writer relates that John Tregeagle, Esq., Justice of Peace, and *steward to John Earl of Radnor*, apprehended Ann by warrant as an impostor, and sent her to Bodmin gaol, "and ordered the prison-keeper that she should be kept without victuals, and she was so kept, and yet she lived, and that without complaining." On her dismissal Tregeagle continued his severity to the deluded or deluding girl, and even kept her a prisoner in his own house without meat, for the purpose of testing the truth of her statement that she was fed by fairies.

Popular fable is liable to modification by the changing circumstances of man, and the varying aspects of external nature; but even then the process is slow, and the additions generally in keeping with the original plan. It is fortunate that the interpolations of books are not easily admitted into the oral version of those stories. There is no doubt that this tale which our late Cornish histories would bring down to a date scarcely exceeding a hundred and fifty years is really very old, but overlaid and disfigured by the accretions of succeeding ages. The additions are, however, not without their value, for they are as regular and definite as a geological section, each modification clearly indicating the age to which it belongs. With the plain country people this man of rents and leases, growing from the unscrupulous pettifogger to the overbearing *parvenu*, is a spirit grim, shadowy, and gigantic, doomed to be the sport of some spirit more powerful than himself, by whom he is bound to some interminable and purposeless labour.

The antiquity of Tregeagle, as well as his giant proportions, may be illustrated by many instances in Cornwall, where there are so many remarkable natural objects to be accounted for in the popular mythology. Near Penare point, on the southern shore, are scattered huge blocks of quartz, which tradition says were hurled there by the great Tregeagle from the opposite coast. Rocks and dark caverns are frequently associated with his name.

The first germ of this legend may be British, as is the name: at all events, those acquainted with European folk-lore will readily recognise the Scandinavian element, and see its affinity with the *Wüthend Heer* of Germany and the other forms which have

resulted from amalgamation with pre-existing or subsequent traditions. In our own country various are its shapes. The Cornish peasant who startles at the far-off wailing of Tregeagle, herein proves his kinship with the Westmoreland hind, who

> ——————— "oftentimes will start,
> For overhead are sweeping Gabriel's hounds,
> Doom'd with their impious lord, the flying hart
> To chase for ever on aerial grounds."

The monkish additions are seen in the sanctuary which is afforded to the harrassed spirit by St. Michael of Roche, and the dread which the pursuing fiend has of the holy rock and its chapel. It was a strange coincidence that, in much later times, John Tregeagle, the unjust and unpitying steward, should have happed upon a tradition, so capable, with a little adaptation, of perpetuating the memory of his misdeeds to all ages.

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